Pioneer

# Service Manual

ORDER NO.
**RRV2348**

## STEREO CD TUNER

# XC-NS1

### THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

| Type | Model | Power Requirement | Remarks |
|---|---|---|---|
| | XC-NS1 | | |
| ZBDXJ | ○ | DC power supplied from other system component | |
| ZLXJ/NC | ○ | DC power supplied from other system component | |
| ZPWXJ | ○ | DC power supplied from other system component | |

- **This product is a system(s) component.**
  **This product does not function properly independently ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.**
- **Please connect it to the STEREO POWER AMPLIFIER M-NS1 for adjustment and operation inspection.**

| Component | Model | Service manual | Remarks |
|---|---|---|---|
| STEREO CD TUNER | XC-NS1 | RRV2348 (RRV2341) | This manual. |
| STEREO POWER AMPLIFIER | M-NS1 | RRV2349 (RRV2321) | |
| SPEAKER SYSTEM | S-NS1-LRW | RRV2371 | Except ZPWXJ type |
| MINIDISC RECORDER | MJ-NS1 | RRV2363 | |

- **This service manual should be used together with the following manual(s):**

| Model No. | Order No. | Remarks |
|---|---|---|
| XC-F10/ZUXJ/CA | RRV2341 | |

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T – ZZK AUG. 2000 Printed in Japan

# 1. SAFETY INFORMATION

## LITHIUM BATTERY NOTICE

**WARNING!**

Lithium batteries. Danger of explosion. Replacement must be done by qualified personnel and only by following the instructions given in the service manual.

This warning is stated on the product or in the operating instructions. When replacing the lithium batteries, follow the note below.
Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.
The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

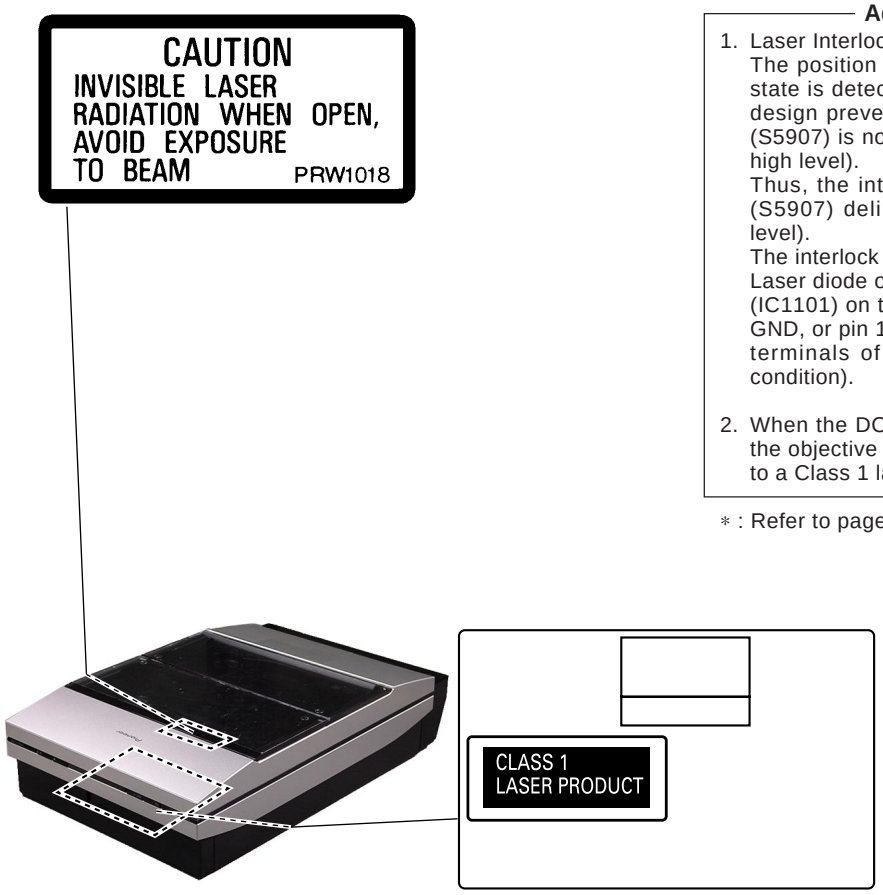
Note: The lithium battery installation position is shown in the exploded views.

**ADVARSEL!**

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Denne advarsel or angivet på produktet eller i brugsvejledningen. Ved udskiftning af lithium batterierne følges nedenstående anveisning.
Batterierne må kun udskiftes med batterier af samme type og mærke.

## LABEL CHECK




**Additional Laser Caution**

1. Laser Interlock Mechanism
   The position of the switch (S5907) for detecting loading state is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch (S5907) is not on CLOSE terminal side (CDO/C signal is high level).
   Thus, the interlock will no longer function if the switch (S5907) deliberately set to CLOSE terminal side (low level).
   The interlock also does not function in the test mode∗.
   Laser diode oscillation will continue, if pin 9 of TA2150FN (IC1101) on the SELF-CHACK CD ASSY is connected to GND, or pin 10 is connected to low level (ON), or else the terminals of Q1101 are shorted to each other (fault condition).

2. When the DOOR WINDOW is removed, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

∗ : Refer to page 29 on the service manual RRV2341.

**IMPORTANT**

THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

**LASER DIODE CHARACTERISTICS**

MAXIMUM OUTPUT POWER: 5 mW
WAVELENGTH: 780 – 785 nm

# 2. CONTRAST OF MISCELLANEOUS PARTS

*NOTES:* ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screws adjacent to ▼ mark on product are used for disassembly.*
● *Reference Nos. indicate the pages and Nos. in the service manual for the base model.*
● *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).*

*560 → 56 x $10^1$ → 561 ····· RD1/4PU 5 6 1 J*
*47k → 47 x $10^3$ → 473 ····· RD1/4PU 4 7 3 J*
*0.5 → R50 ····· RN2H R 5 0 K*
*1 → 1R0 ····· RS1P 1 R 0 K*

*Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).*

*5.62k → 562 x $10^1$ → 5621 ····· RN1/4PC 5 6 2 1 F*

## ■ CONTRAST TABLE

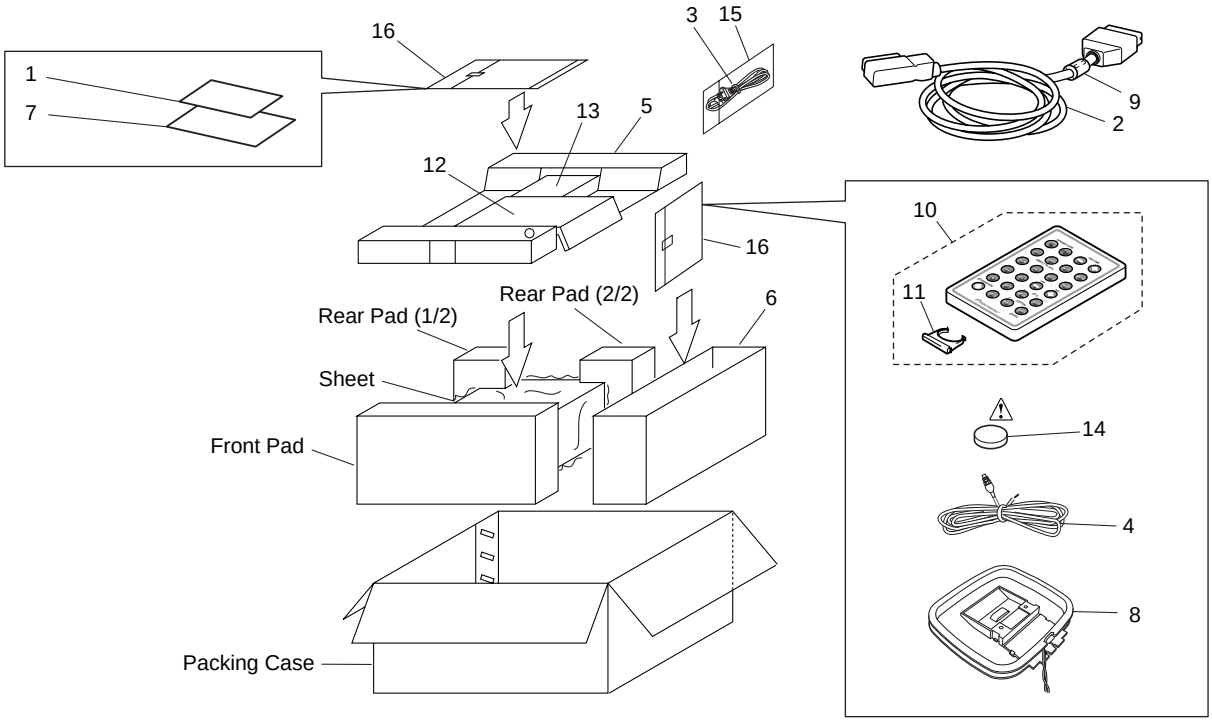
XC-NS1/ZBDXJ, ZLXJ/NC, ZPWXJ and XC-F10/ZUXJ/CA are constructed the same except for the following :

| Ref. No. | Mark | Symbol and Description | Part No. | | | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | XC-F10 /ZUXJ/CA | XC-NS1 /ZBDXJ | XC-NS1 /ZLXJ/NC | XC-NS1 /ZPWXJ | |
| | | **PCB ASSEMBLIES** | | | | | |
| | NSP | CD TX MAIN ASSY | AWM7528 | AWM7529 | AWM7529 | AWM7529 | |
| P5- 1 | | └ MAIN UNIT | AWU7621 | AWU7622 | AWU7622 | AWU7622 | |
| | | **PACKING SECTION** | | | | | |
| P3- 3 | | Packing Case | AHD7916 | AHD7917 | AHD7918 | AHD7919 | |
| P3- 5 | | Stand Note | ARM7044 | Not used | Not used | ARM7044 | |
| | | Paper Pattern | Not used | AAX7807 | AAX7807 | Not used | No. 1 |
| | | System Cable (20P) | Not used | ADE7057 | ADE7057 | Not used | No. 2 |
| | ⚠ | Power Cord | Not used | ADG1158 | ADG1154 | Not used | No. 3 |
| | | FM Wire Antenna | Not used | ADH7004 | ADH7004 | Not used | No. 4 |
| | | Spacer | Not used | AHB7038 | AHB7038 | Not used | No. 5 |
| | | Spacer CD/VCD | Not used | AHB7040 | AHB7040 | Not used | No. 6 |
| | | Operating Instructions (English/Chinese/Spanish) | Not used | ARE7265 | ARE7265 | Not used | No. 7 |
| | | Loop Antenna | Not used | ATB7009 | ATB7009 | Not used | No. 8 |
| | | Ferrite Core | Not used | ATX7007 | ATX7007 | Not used | No. 9 |
| | | Remote control Unit | Not used | AXD7271 | AXD7271 | Not used | No. 10 |
| | | Battery Lid | Not used | AZN7834 | AZN7834 | Not used | No. 11 |
| | | Stand A | Not used | AXG7096 | AXG7096 | Not used | No. 12 |
| | | Stand B | Not used | AXG7097 | AXG7097 | Not used | No. 13 |
| | NSP⚠ | Lithium Battery (CR2025) | Not used | VEM1009 | VEM1009 | Not used | No. 14 |
| | NSP | Polyethylene Bag (115 × 270 × 0.05) | Not used | Z21-013 | Z21-013 | Not used | No. 15 |
| | NSP | Polyethylene Bag (0.03 × 230 × 340) | Not used | Z21-038 | Z21-038 | Not used | No. 16 |
| | | **EXTERIOR SECTION** | | | | | |
| P5-63 | NSP | Name Label | AAL7259 | AAL7260 | AAL7261 | AAL7262 | |
| P5-65 | | 65 Label | ARW7050 | Not used | Not used | Not used | |
| P5-66 | | Label M | ARW7108 | ARW7108 | Not used | Not used | |
| | | Caution Label | Not used | PRW1018 | PRW1018 | PRW1018 | *1 |

Notes : The numbers in the remarks column correspond to the numbers on the " EXPLODED VIEWS ".
For PCB ASSEMBLIES, Refer to "CONTRAST OF PCB ASSEMBLIES".
*1 Refer to "LABEL CHECK".

## ■ EXPLODED VIEWS

### ● PACKING SECTION (Except ZPWXJ type)



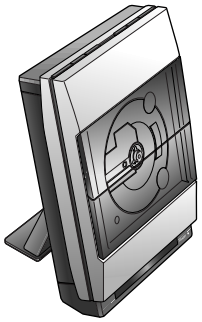

## ■ CONTRAST OF PCB ASSEMBLIES

### CF MAIN UNIT

AWU7622 and AWU7621 are constructed the same except for the following :

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | AWU7621 | AWU7622 | |
| | R5575 | RS1/16S223J | RS1/16S103J | |
| | R5577 | RS1/16S333J | RS1/16S393J | |

# Service Manual



ORDER NO.
**RRV2341**

## STEREO CD TUNER

# XC-F10

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Type | Model | Power Requirement | Remarks |
|---|---|---|---|
| | XC-F10 | | |
| ZUXJ/CA | ○ | DC power supplied from other system component | |

- **This product is a system(s) component.**
  **This product does not function properly independently ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.**
- **Please connect it to the STEREO POWER AMPLIFIER M-F10, for adjustment and operation inspection.**
- **This product's instructions are contained within the instruction manual of the related system component(s).**
  **The manual is packed with those component(s).**
  **This product's accessories etc. are packed with its related component(s).**

| Component | Model | Service manual | Remarks |
|---|---|---|---|
| STEREO CD TUNER | XC-F10 | RRV2341 | This manual. |
| STEREO POWER AMPLIFIER | M-F10 | RRV2321 | |
| SPEAKER SYSTEM | S-F10-LRW | RRV2346 | |
| COMPACT DISC RECORDER | PDR-F10 | – | |

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# 1. SAFETY INFORMATION

**This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.**
**Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.**

**WARNING**
**This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.**

**Health & Safety Code Section 25249.6 – Proposition 65**

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

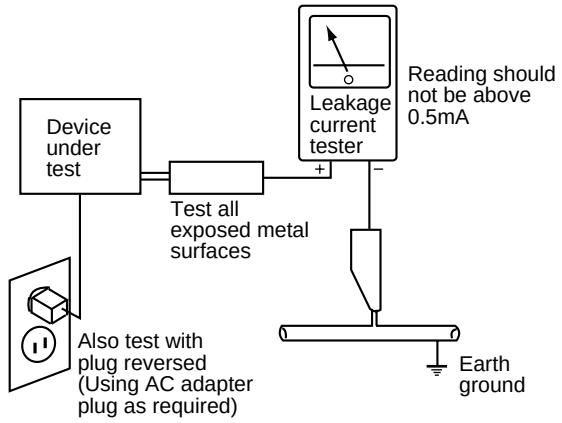
**(FOR USA MODEL ONLY)**

## 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

**LEAKAGE CURRENT CHECK**

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Reading should not be above 0.5mA
Leakage current tester
+
–
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

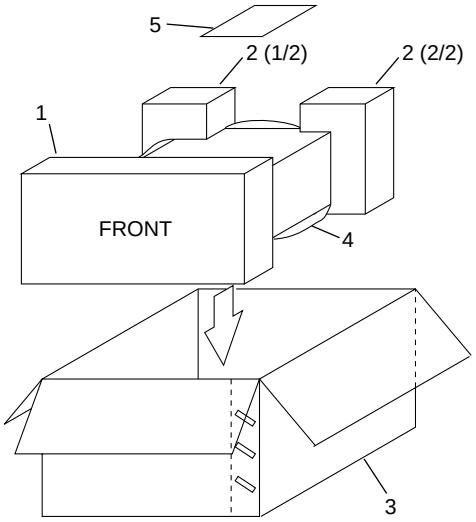
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

# 2. EXPLODED VIEWS AND PARTS LIST

*NOTES:* ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screws adjacent to ▼ mark on the product are used for disassembly.*

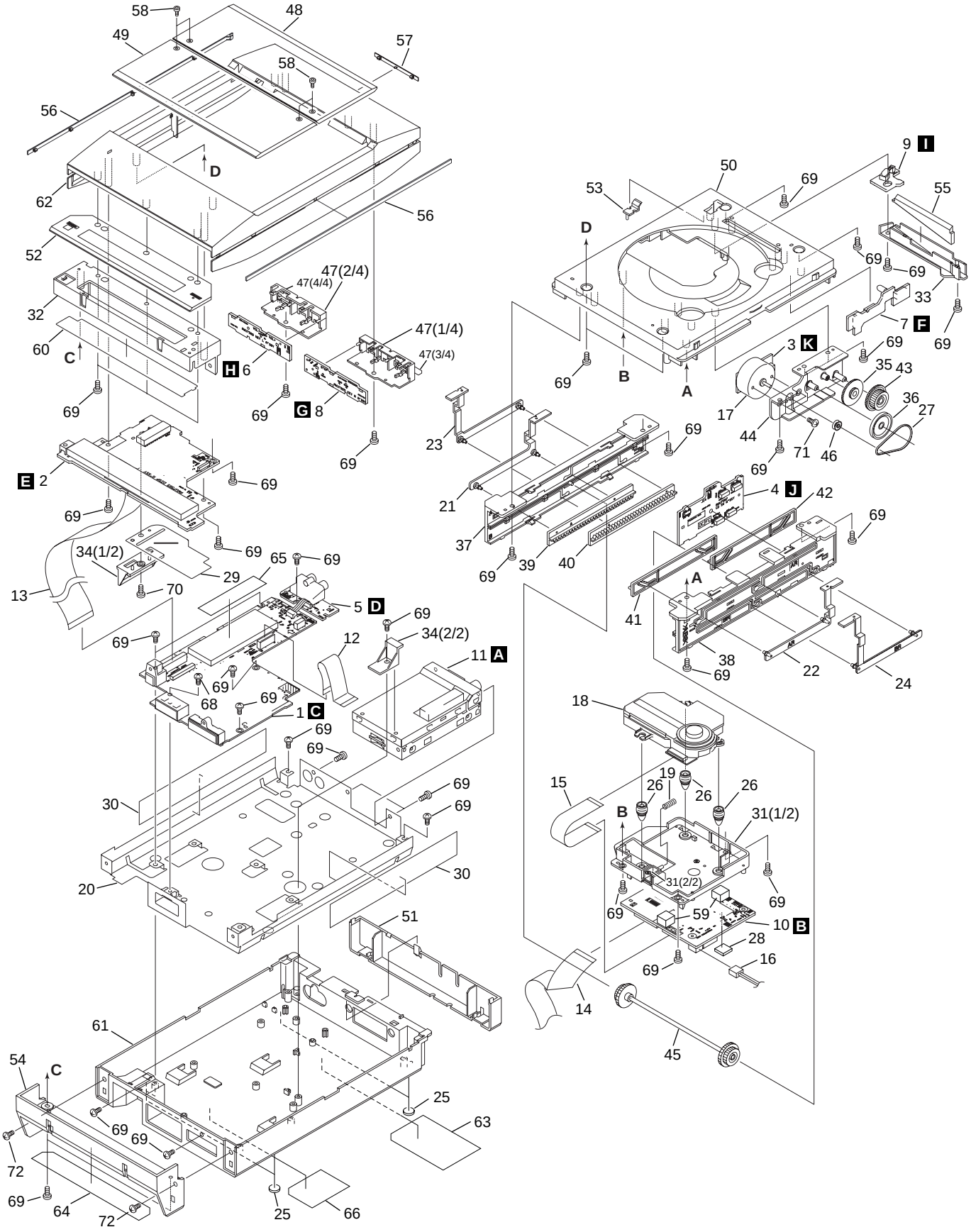
## 2.1 PACKING




### • PACKING PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Front Pad M | AHA7295 |
| | 2 | Rear Pad M | AHA7296 |
| | 3 | Packing Case CD/ZVY | AHD7916 |
| | 4 | Sheet | Z23-026 |
| | 5 | Stand Note | ARM7044 |

## 2.2 EXTERIOR


58
48
49
57
58
56
D
62
56
52
47(2/4)
47(4/4)
32
47(1/4)
47(3/4)
60
C
H 6
69
69
G 8
69
E 2
69
69
69
34(1/2)
65
69
29
13
70
5 D
69
69
12
34(2/2)
11 A
69
68
69
1 C
69
69
30
69
69
30
20
51
61
54
C
69
69
25
63
72
69
64
72
25
66
9 I
50
69
53
55
D
69
69
33
7 F
69
69
B
A
3 K
69
35
43
17
36
27
44
71
46
69
23
69
21
37
39
40
69
4 J
42
69
A
41
38
69
22
24
18
19
26
26
26
15
B
31(1/2)
31(2/2)
69
69
59
10 B
28
16
69
14
45

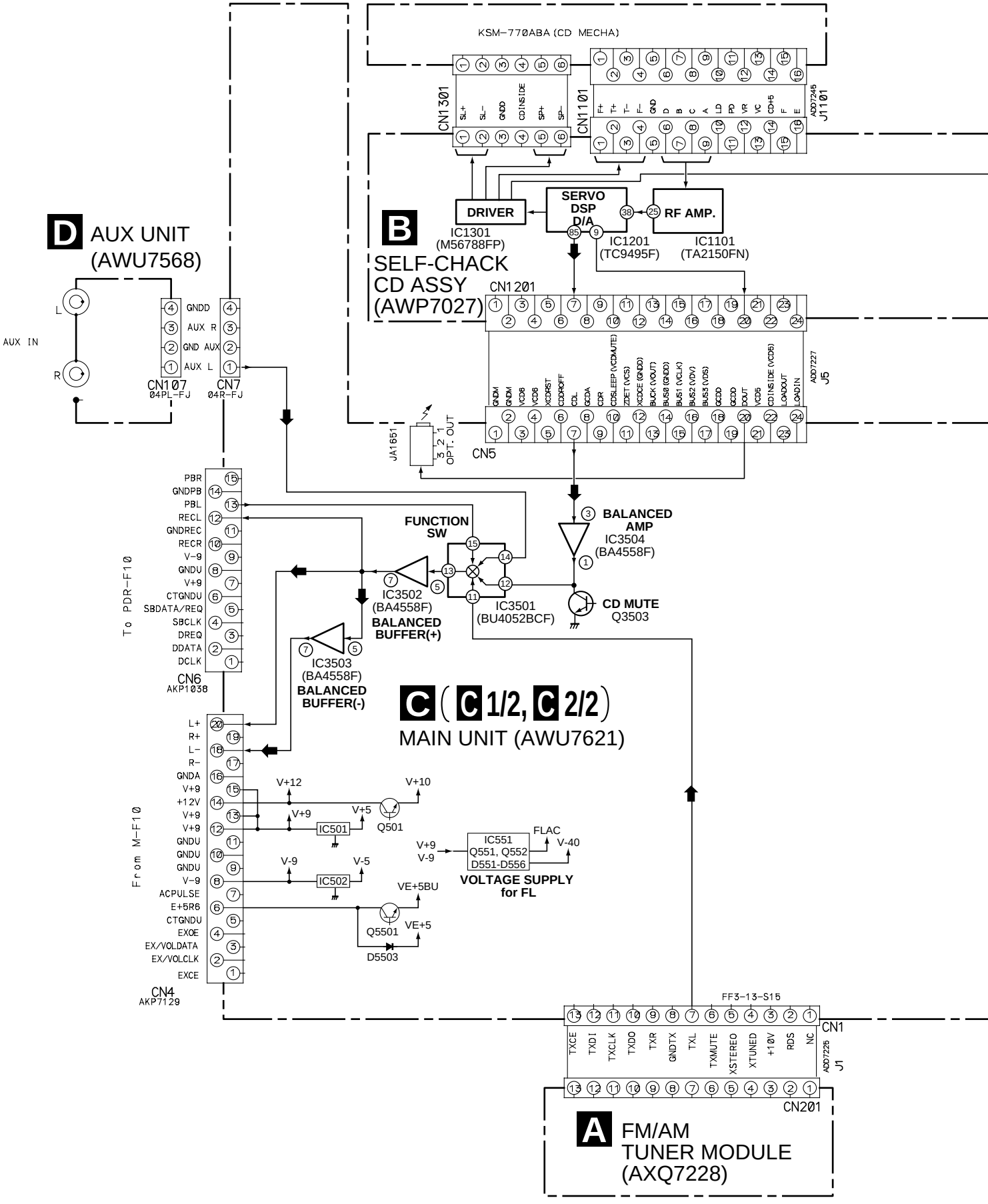
## • EXTERIOR PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | MAIN UNIT | AWU7621 |
| | 2 | DISP UNIT | AWU7565 |
| | 3 | MOTOR UNIT | AWU7566 |
| | 4 | CD SW UNIT | AWU7567 |
| | 5 | AUX UNIT | AWU7568 |
| | 6 | KEY L UNIT | AWU7569 |
| | 7 | LED UNIT | AWU7570 |
| | 8 | KEY R UNIT | AWU7625 |
| | 9 | SENS UNIT | AWU7657 |
| NSP | 10 | SELF-CHACK CD ASSY | AWP7027 |
| | 11 | FM/AM TUNER MODULE | AXQ7228 |
| | 12 | 13P FFC/30V (J1) | ADD7225 |
| | 13 | 22P FFC/30V (J2) | ADD7226 |
| | 14 | 24P FFC/30V (J5) | ADD7227 |
| | 15 | 16P FFC/30V (J1101) | ADD7245 |
| | 16 | CONNECTOR ASSY (J111) | PF02PP2R05 |
| | 17 | Slider Motor | VXM1033 |
| | 18 | CD Mecha | KSM-770ABA |
| | 19 | Float Spring | ABH7191 |
| NSP | 20 | Bottom Chassis CD | ANA7107 |
| | 21 | Door Angle AL | ANG7306 |
| | 22 | Door Angle AR | ANG7307 |
| | 23 | Door Angle BL | ANG7308 |
| | 24 | Door Angle BR | ANG7309 |
| | 25 | Leg | AEB7090 |
| | 26 | Float Rubber | AEB7129 |
| | 27 | Belt | AEB7171 |
| NSP | 28 | Leg | AEB7200 |
| | 29 | Barrier | AEC7288 |
| | 30 | Chassis Sheet | AEC7290 |
| | 31 | Mecha Holder | AMR7311 |
| | 32 | FL Holder | AMR7312 |
| | 33 | Reflector | AMR7313 |
| | 34 | FFC Barrier | AMR7314 |
| | 35 | Gear A | ANW7063 |

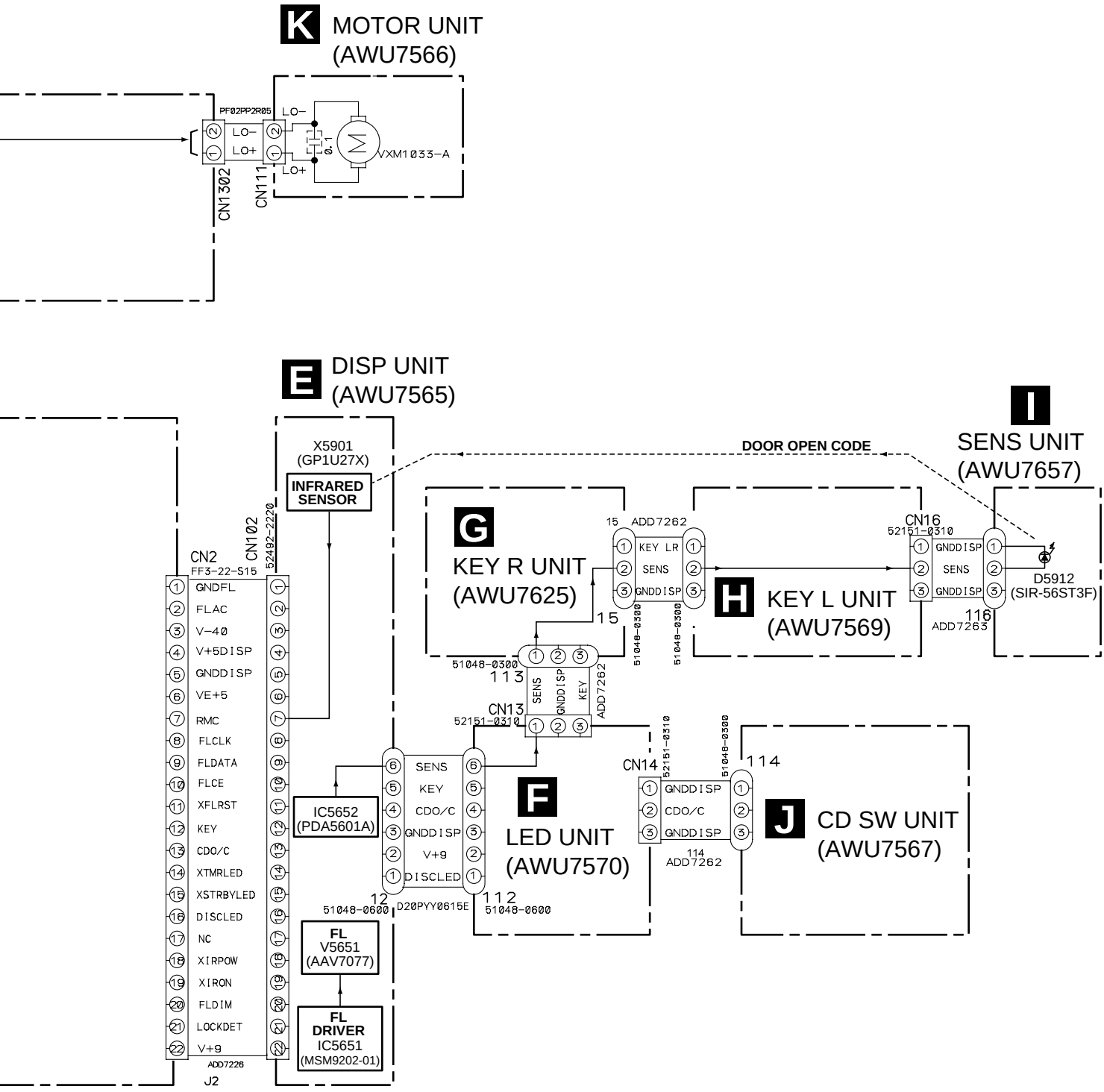
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 36 | Gear Pulley A | ANW7066 |
| | 37 | Cam Base L | ANW7196 |
| | 38 | Cam Base R | ANW7197 |
| | 39 | Slide Cam A | ANW7198 |
| | 40 | Slide Cam B | ANW7199 |
| | 41 | Slide Cam C | ANW7200 |
| | 42 | Slide Cam D | ANW7201 |
| | 43 | Gear N | ANW7203 |
| | 44 | Gear Holder | ANW7205 |
| | 45 | Shaft Assy | AXG7095 |
| | 46 | Motor Pulley | PNW1634 |
| | 47 | Button CD | AAD7581 |
| | 48 | Door Window A | AAK7748 |
| | 49 | Door Window B | AAK7749 |
| | 50 | Sub Panel CD | AAK7771 |
| | 51 | Rear Cap CD | AAK7758 |
| | 52 | FL Window CD | AAK7773 |
| | 53 | Lens | AAK7806 |
| | 54 | FL Cover | AAK7841 |
| | 55 | Disc Lens | AAK7847 |
| | 56 | Side Line | AAP7074 |
| | 57 | Rear Line CD | AAP7075 |
| | 58 | Screw | ABA7061 |
| | 59 | PCB Spacer | AEB7206 |
| | 60 | FL Filter | AEC7273 |
| | 61 | Bottom Base CDMD | AMA7017 |
| | 62 | Top Panel CD | AMB7699 |
| NSP | 63 | Name Label CD/ZU | AAL7259 |
| | 64 | Connector Label CD/E | ARW7093 |
| | 65 | 65 Label | ARW7050 |
| | 66 | Label M | ARW7108 |
| | 67 | • • • • • • | |
| | 68 | Screw | BBZ30P080FMC |
| | 69 | Screw | BPZ30P080FZK |
| | 70 | Screw | BPZ30P120FMC |
| | 71 | Screw | PMZ26P040FMC |
| | 72 | Screw | VBZ30P100FZK |

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

## 3.1 BLOCK DIAGRAM

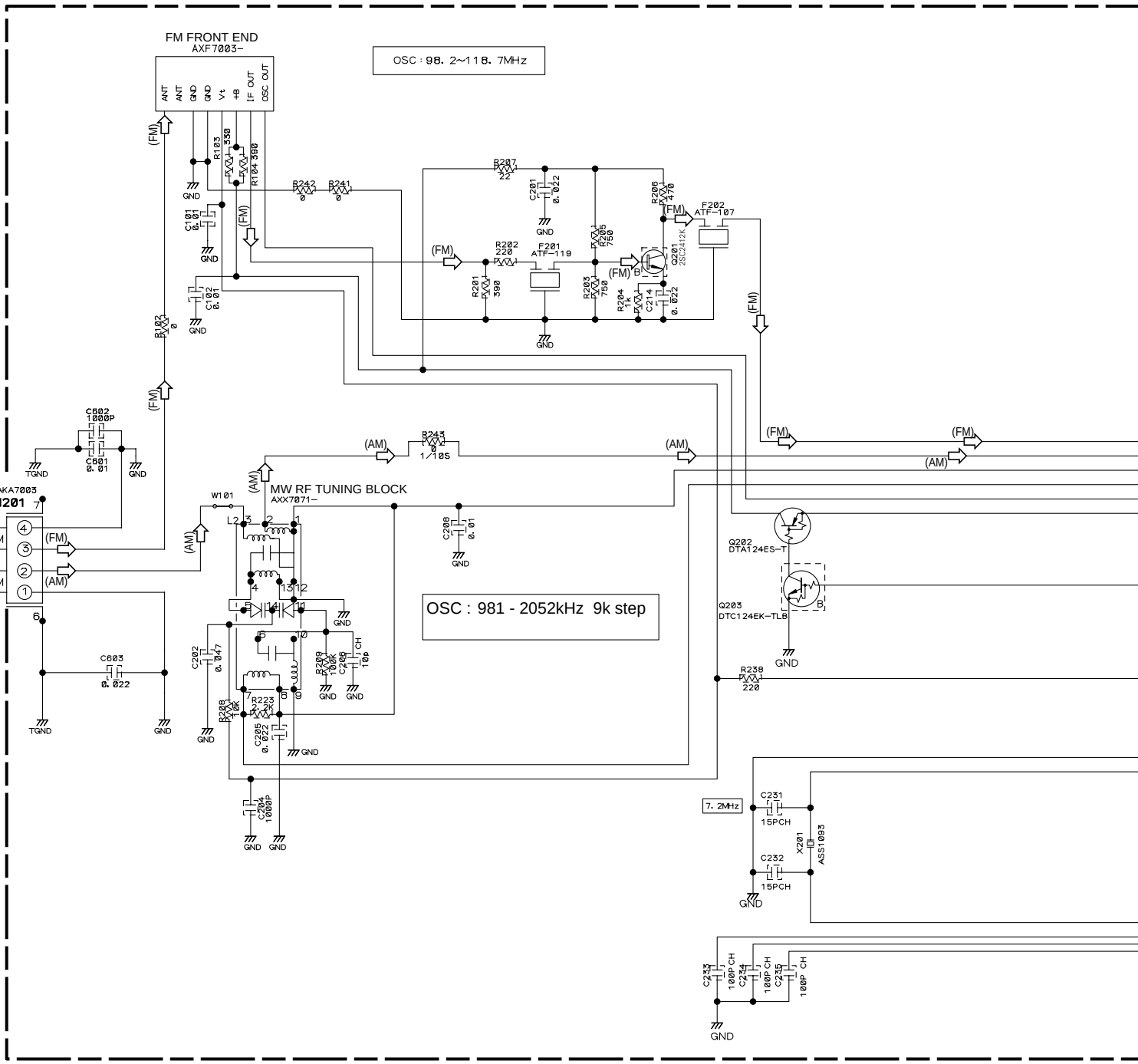


Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



## 3.2 FM/AM TUNER MODULE

A FM/AM TUNER MODULE (AXQ7228)

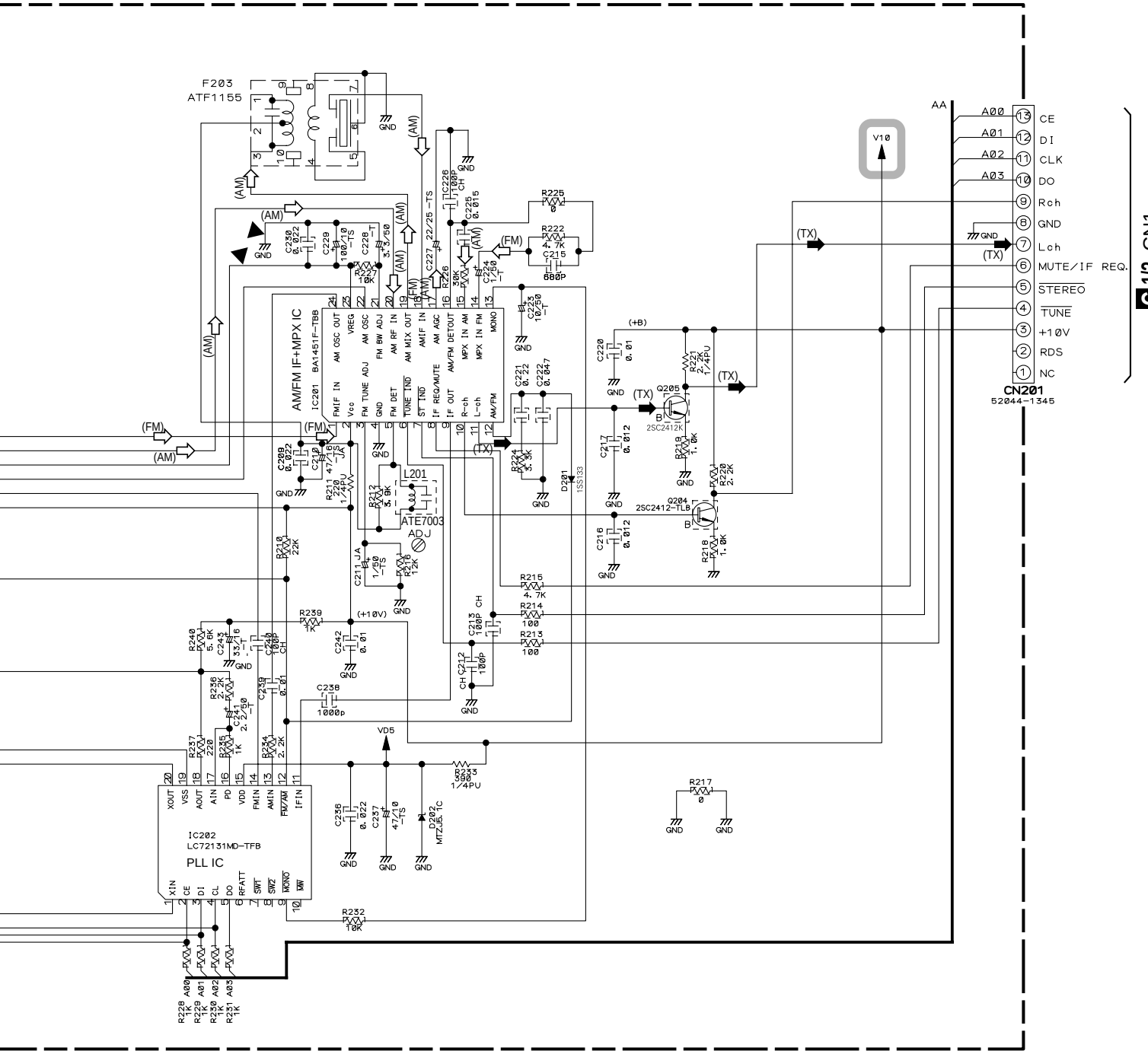


Notes

1. RESISTORS
   Indicated in Ω, 1/16W±5% Tolerance unless otherwise noted K;KΩ, M;MΩ.
2. CAPACITORS
   Indicated in Capacity(μF)/VOLTAGE(V) unless otherwise noted P;PF.
3. DIODES
   No mark diode is 1SS133.

: The power supply is shown with the marked box.

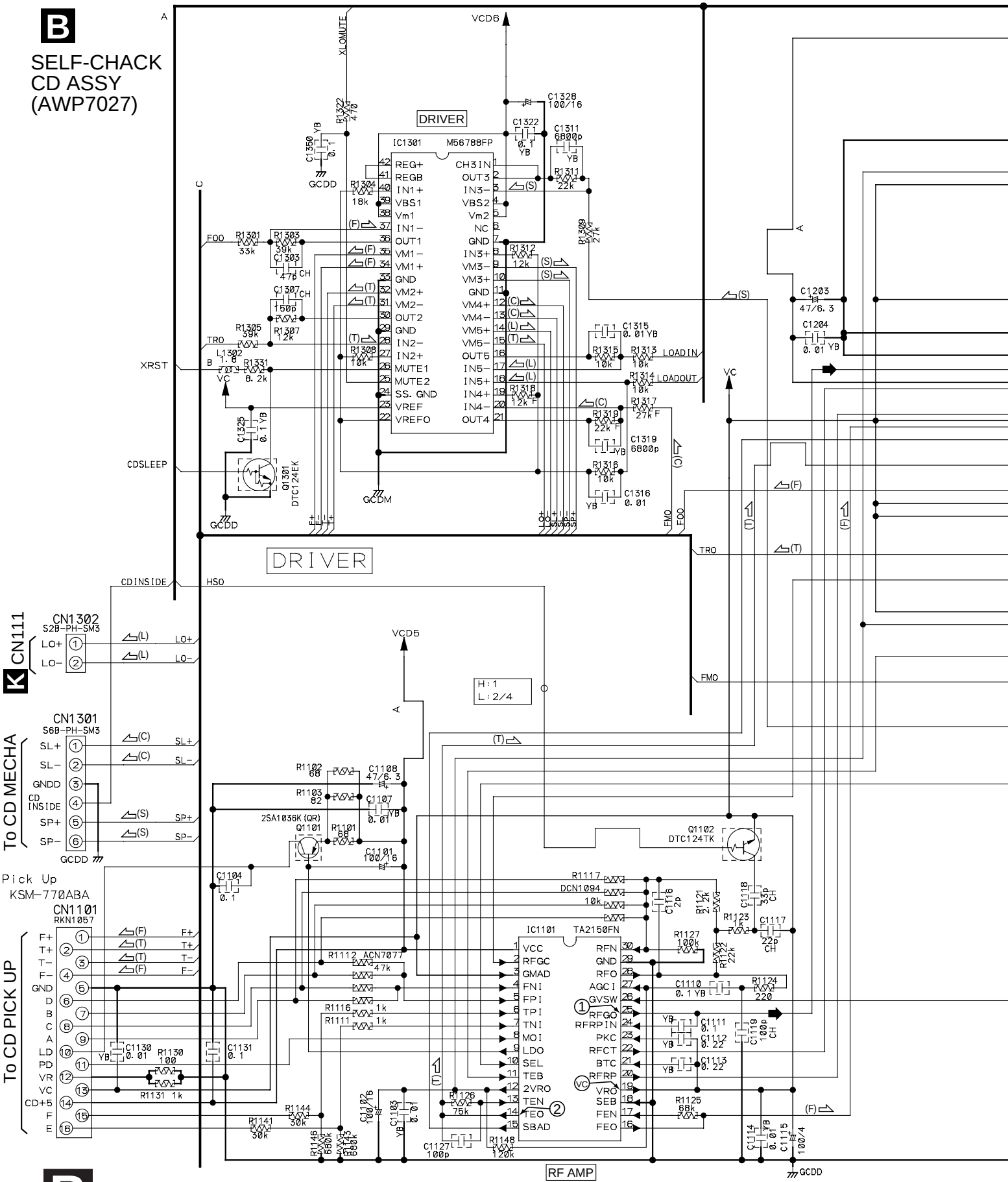
(TX) : AUDIO SIGNAL ROUTE (TUNER)
(AM) : AM SIGNAL ROUTE
(FM) : FM SIGNAL ROUTE

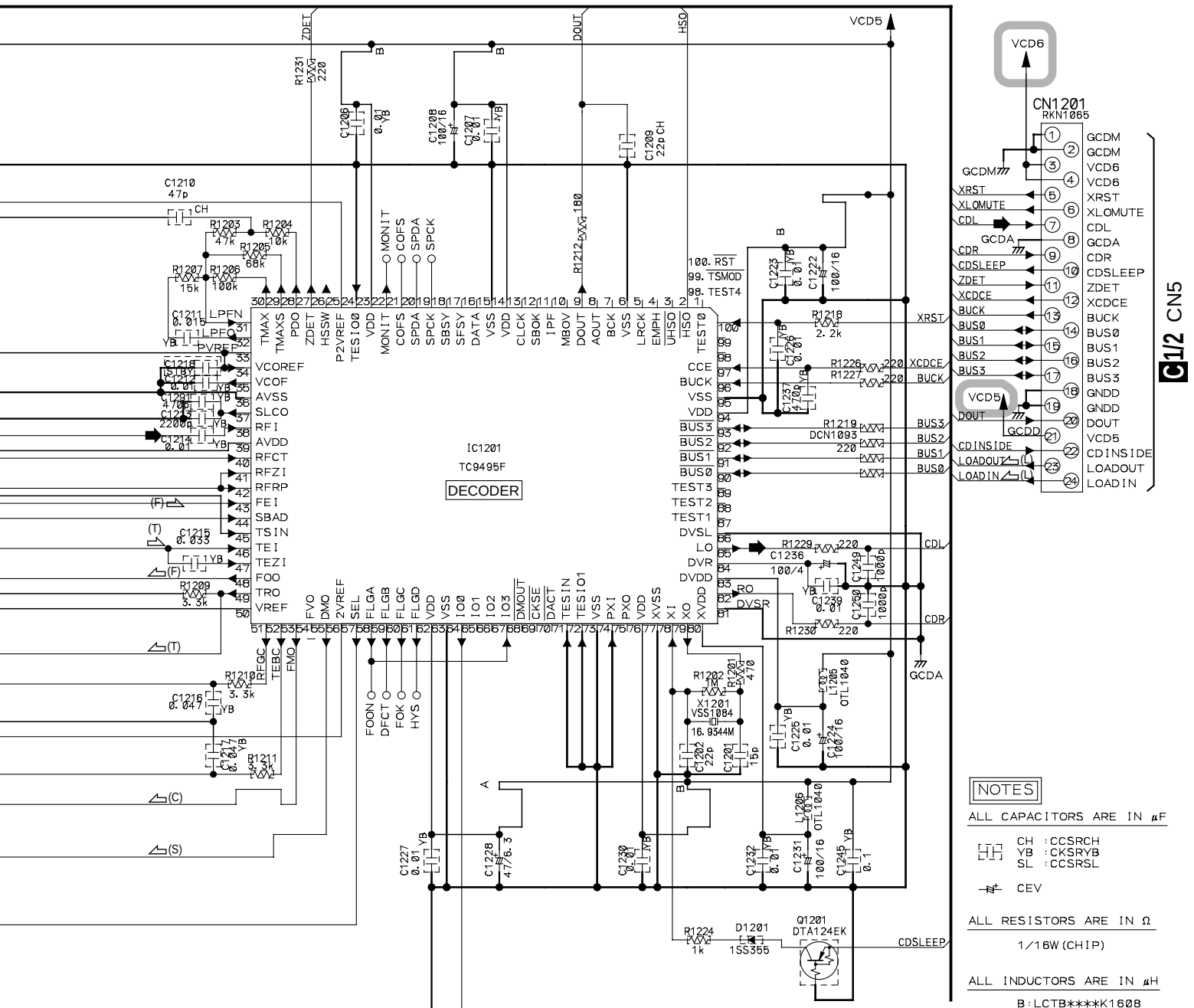


## 3.3 SELF-CHACK CD ASSY

B

SELF-CHACK
CD ASSY
(AWP7027)






NOTES

ALL CAPACITORS ARE IN μF

CH : CCSRCH
YB : CKSRYB
SL : CCSRSL

CEV

ALL RESISTORS ARE IN Ω

1/16W (CHIP)

ALL INDUCTORS ARE IN μH

B : LCTB****K1608
A : LCTA****J2520

Note: The encircled numbers denote measuring point in the schematic diagram.

**1** IC1101- Pin 25: PLAY MODE (RF)
H : 500nsec/div
1.0Vp-p
←VC

**2** IC1101- Pin 14 : TEST MODE, Tracking Open (TRER)
H : 5msec/div
2.0Vp-p
←VC

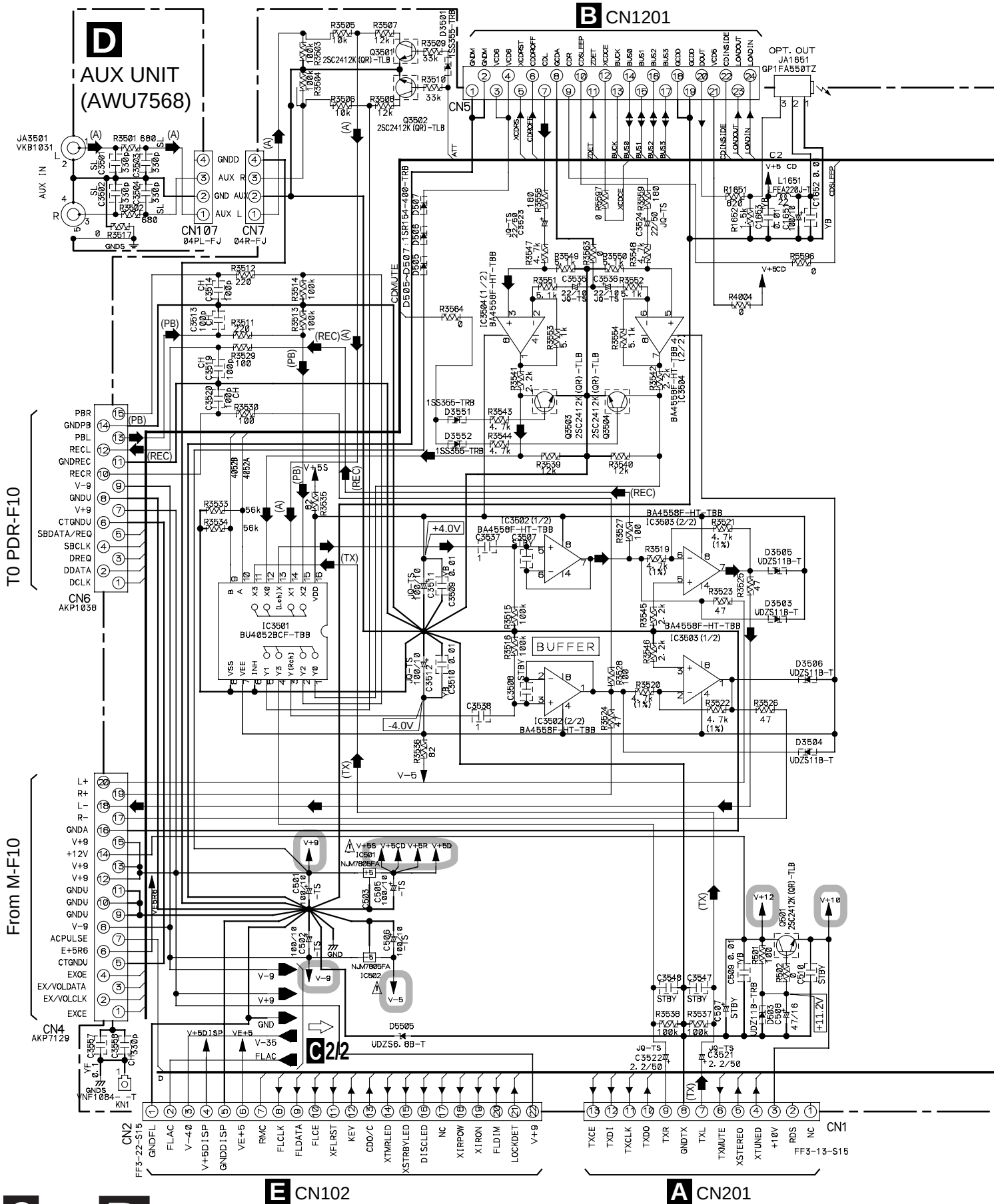
VC : IC1101- Pin19

GND : CD-RW
VCC : Normal

➡ : CD AUDIO SIGNAL ROUTE
(F) : FOCUS SERVO LOOP LINE
(T) : TRACKING SERVO LOOP LINE
(S) : SPINDLE SERVO LOOP LINE
(C) : CARRIAGE SERVO LOOP LINE
(L) : LOADING SERVO LOOP LINE

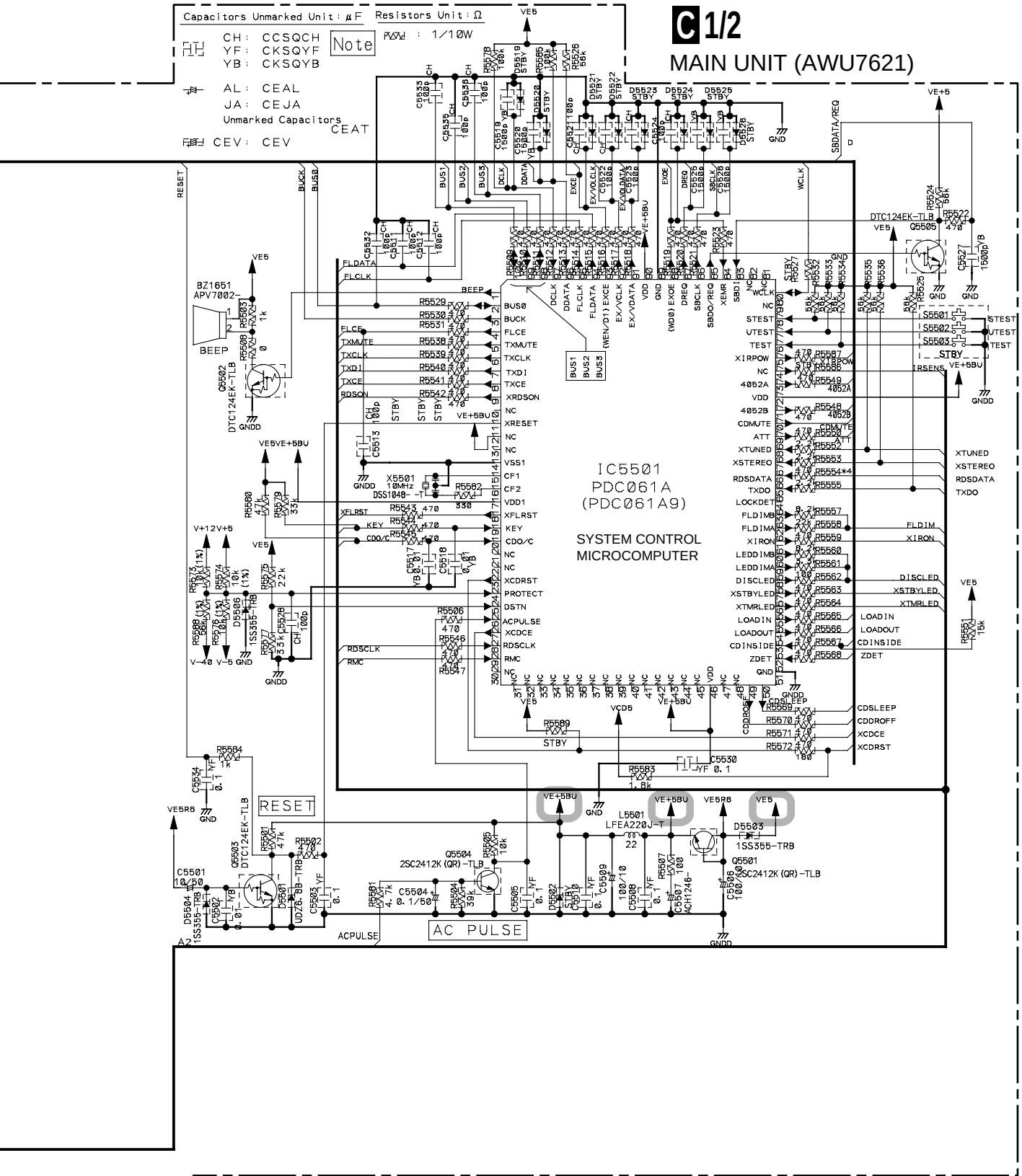
⬭ : The power supply is shown with the marked box.

## 3.4 MAIN (1/2) and AUX UNITS



# C 1/2

## MAIN UNIT (AWU7621)




: The power supply is shown with the marked box.

: AUDIO SIGNAL ROUTE

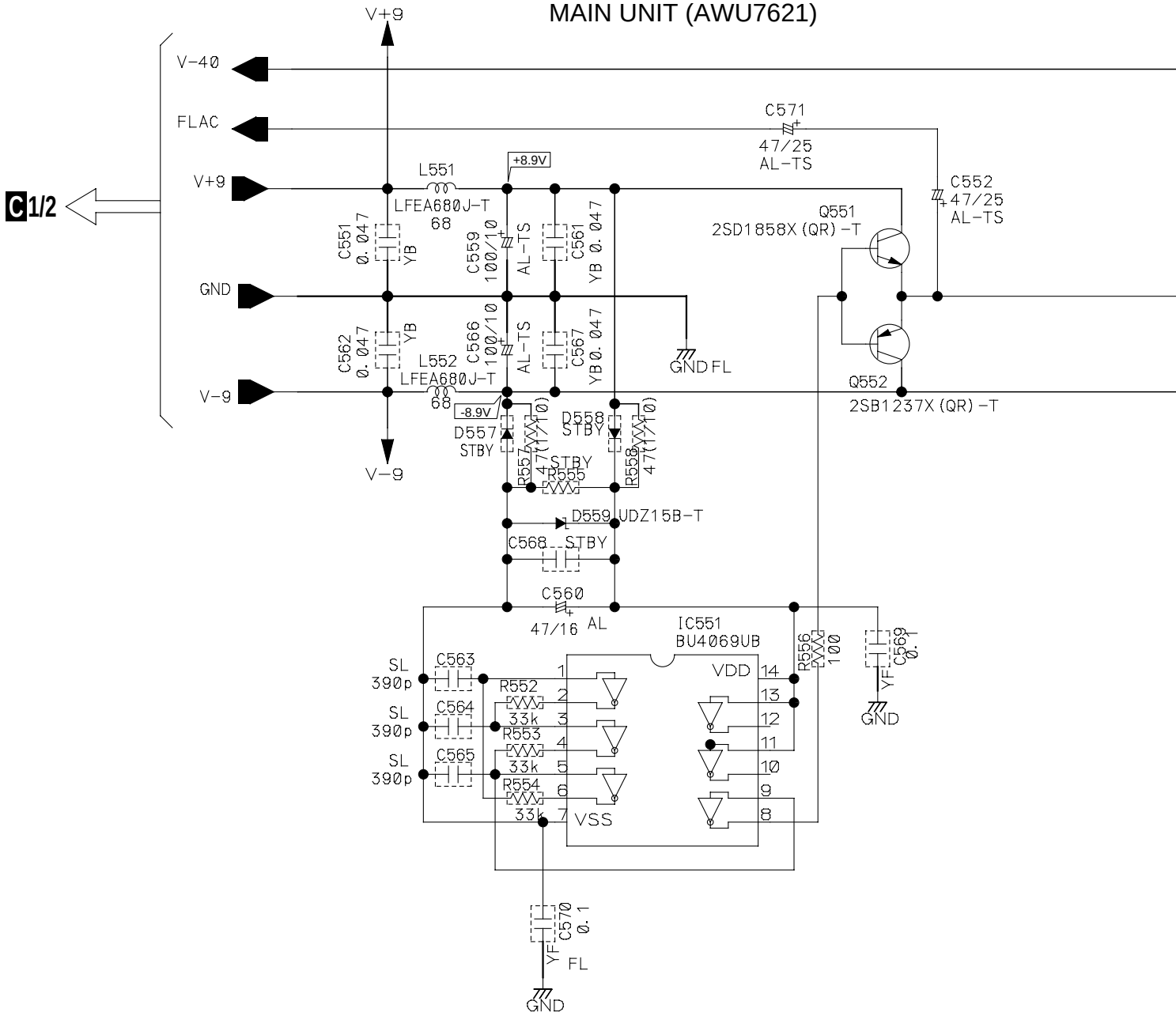
(REC) : REC AUDIO SIGNAL ROUTE

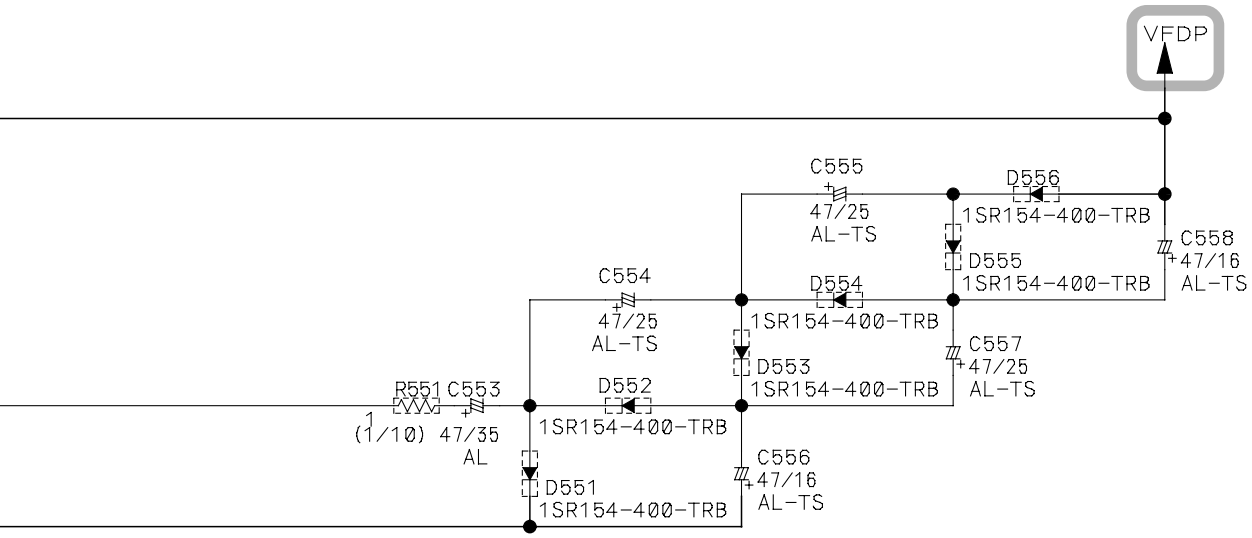
(TX) : TUNER AUDIO SIGNAL ROUTE

(PB) : PB AUDIO SIGNAL ROUTE

(A) : AUX AUDIO SIGNAL ROUTE

## 3.5 MAIN (2/2) UNIT






: The power supply is shown with the marked box.

## Note

Capacitors Unmarked Unit : μF

CH : CCSQCH
YF : CKSQYF
YB : CKSQYB

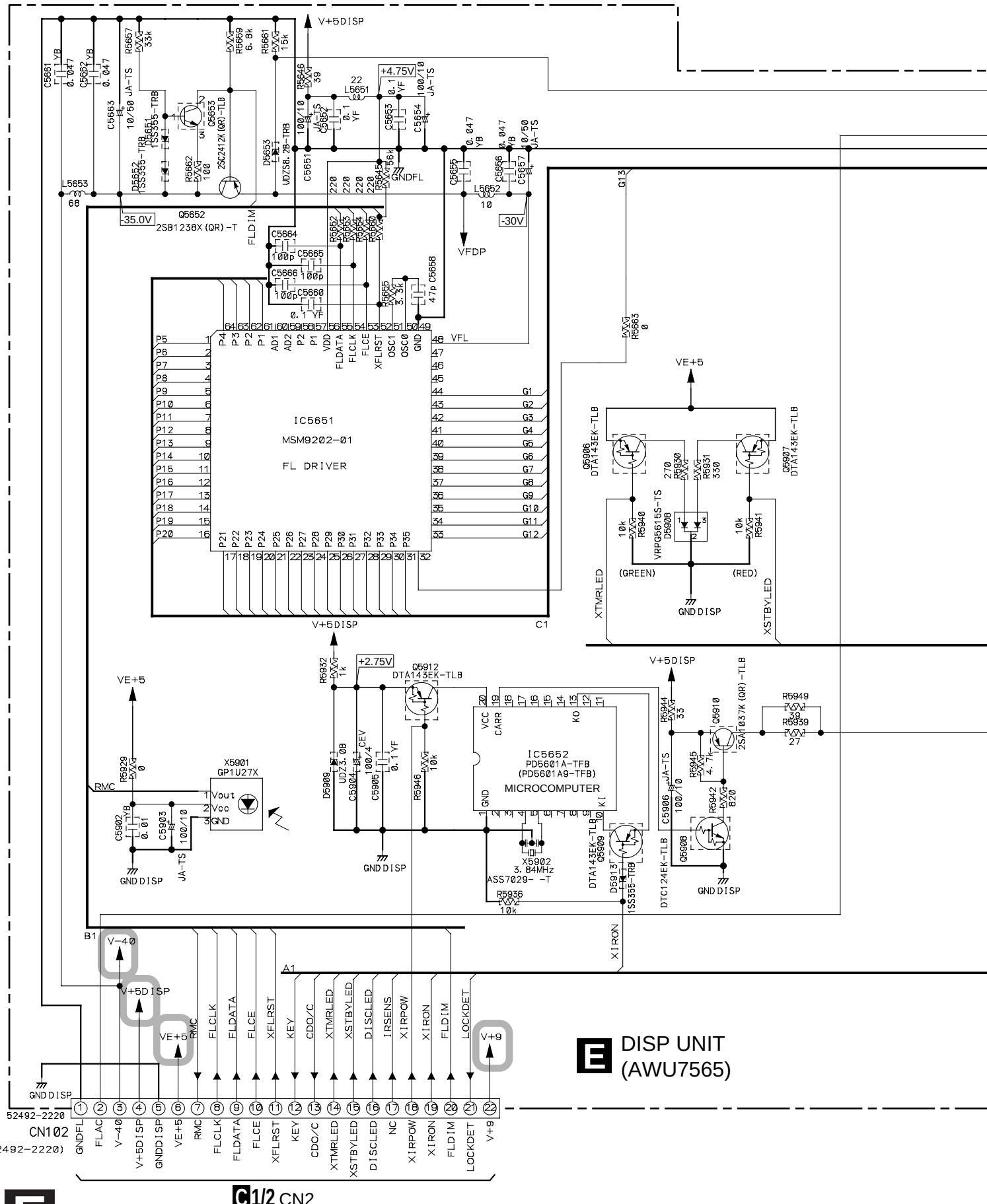
AL : CEAL
JA : CEJA
Unmarked Capacitors CEAT

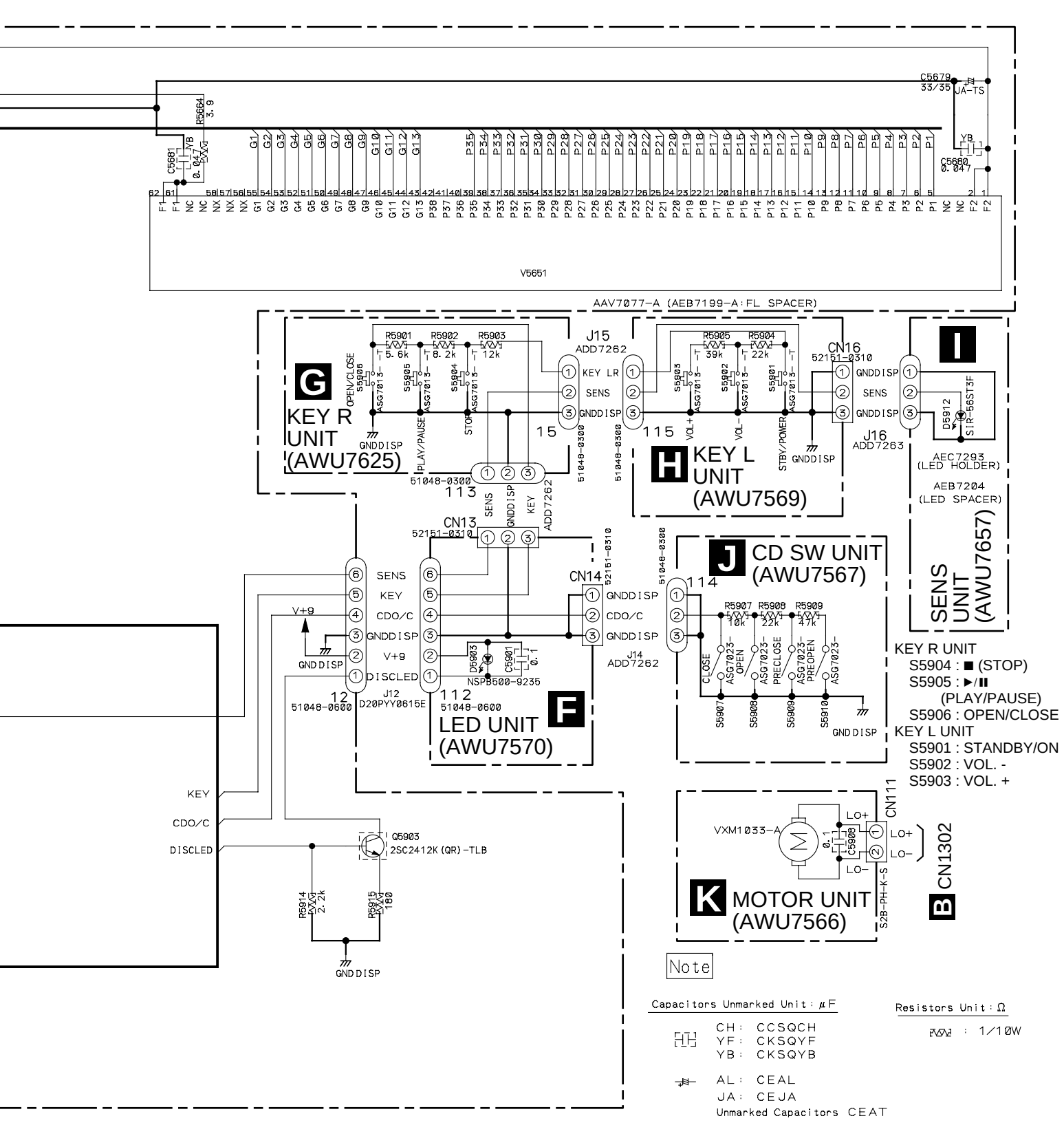
CEV : CEV

Resistors Unit : Ω

: 1/10W

## 3.6 DISP, LED, KEY R, KEY L, SENS, CD SW and MOTOR UNITS






: The power supply is shown with the marked box.

Note

Capacitors Unmarked Unit : μF

CH : CCSQCH
YF : CKSQYF
YB : CKSQYB
AL : CEAL
JA : CEJA
Unmarked Capacitors CEAT
CEV : CEV

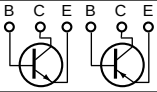
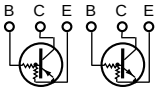
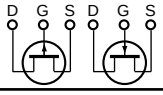
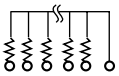
Resistors Unit : Ω

: 1/10W

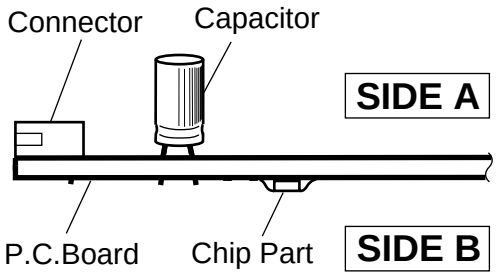
# 4. PCB CONNECTION DIAGRAM

## NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

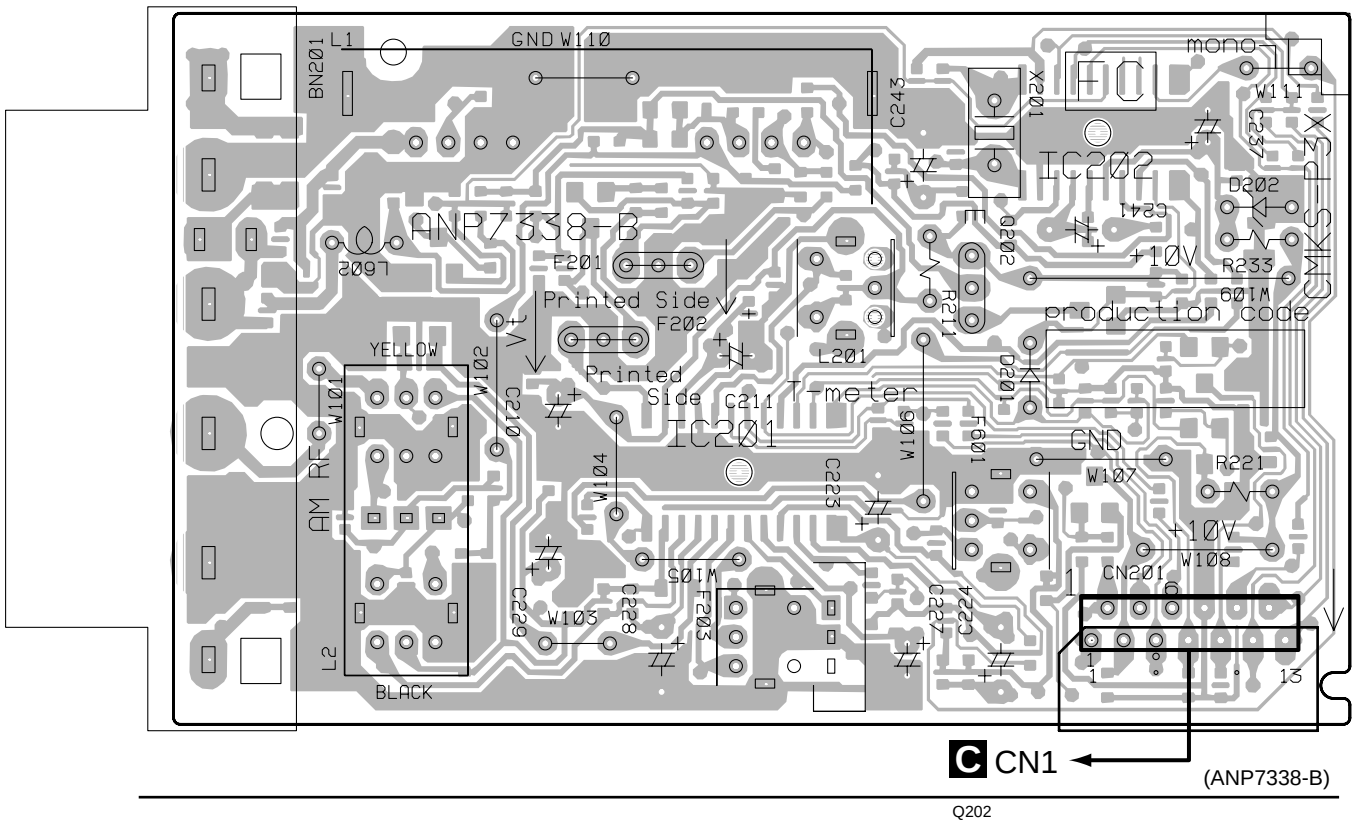
| Symbol In PCB Diagrams | Symbol In Schematic Diagrams | Part Name |
|---|---|---|
| |   | Transistor |
| |   | Transistor with resistor |
| |   | Field effect transistor |
| |  | Resistor array |
| | | 3-terminal regulator |

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



## 4.1 FM/AM TUNER MODULE

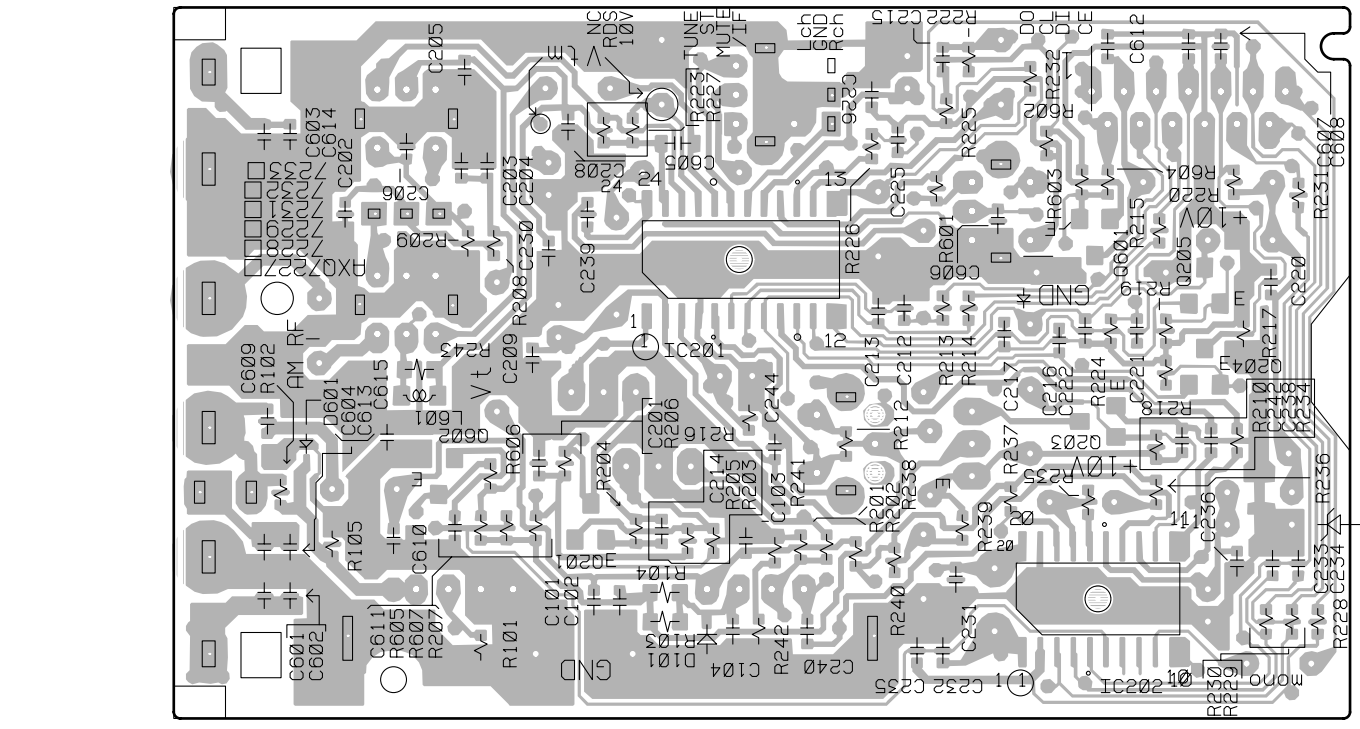
### A FM/AM TUNER MODULE — SIDE A




C CN1 (ANP7338-B)

Q202

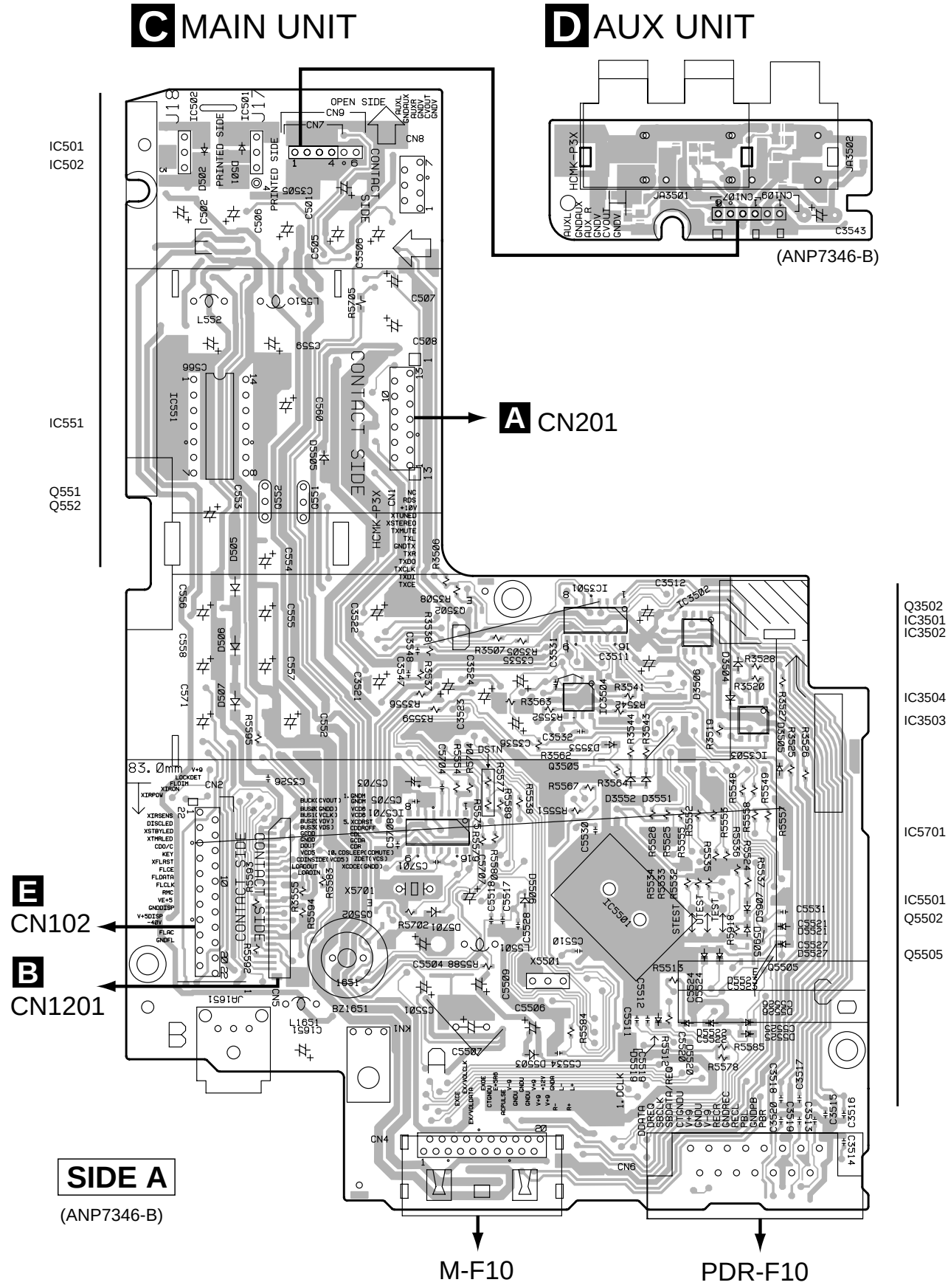
### A FM/AM TUNER MODULE — SIDE B




(ANP7338-B)

Q201 IC201 Q203 IC202 Q205 Q204

## 4.2 MAIN and AUX UNITS

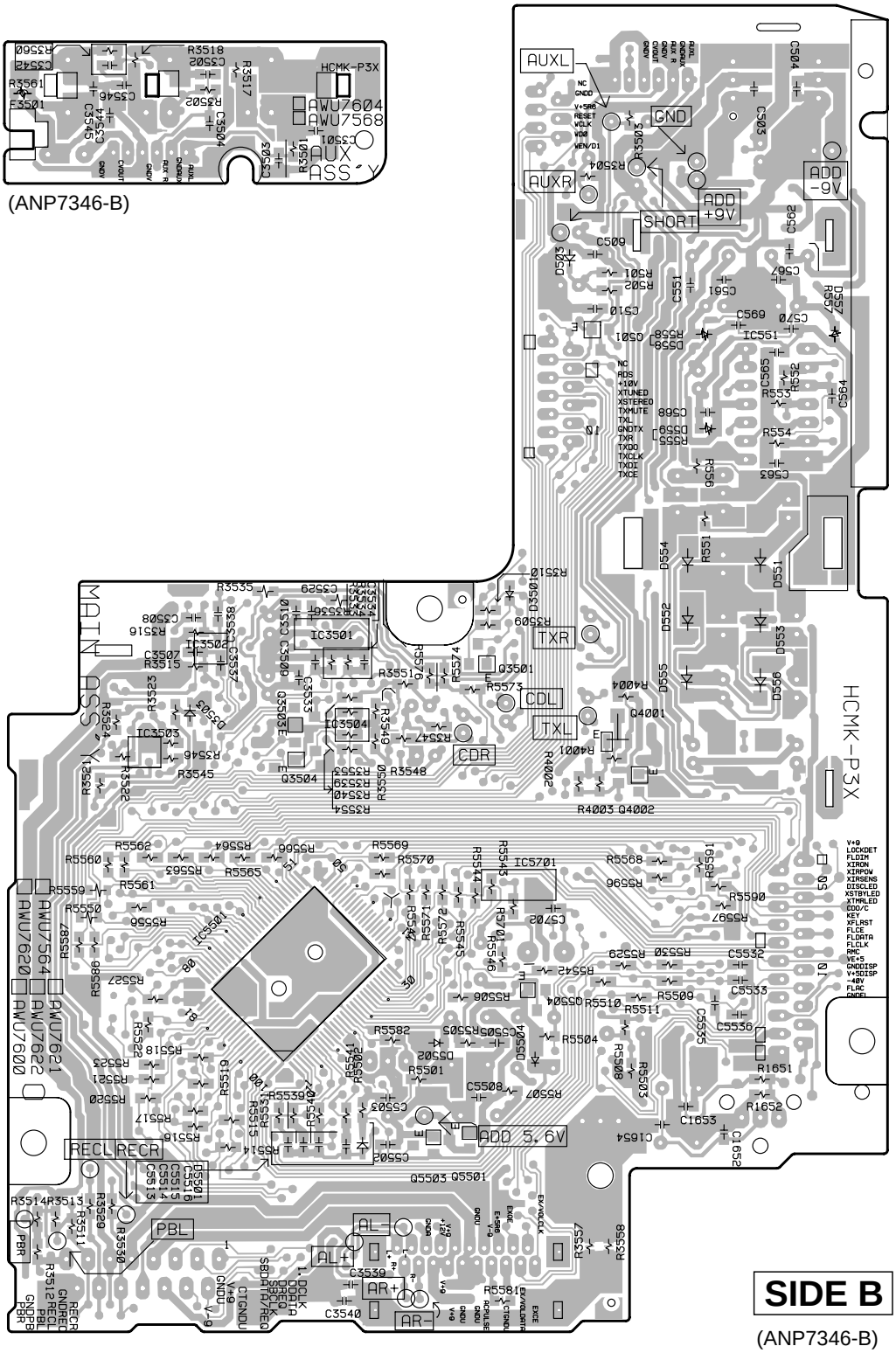


## D AUX UNIT



(ANP7346-B)

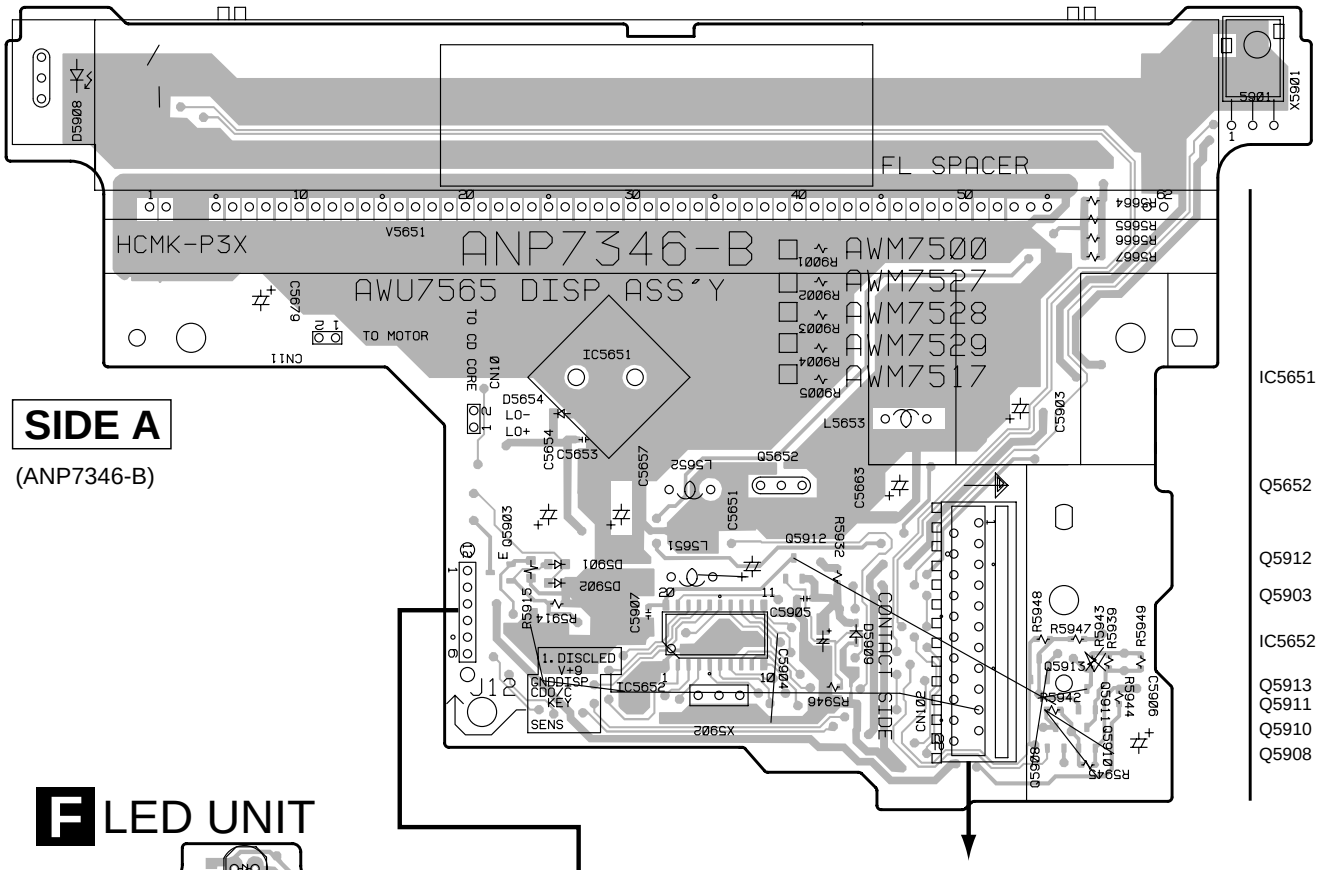
## C MAIN UNIT




(ANP7346-B)

## 4.3 DISP, LED, KEYR, KEYL, SENS and CD SW UNITS

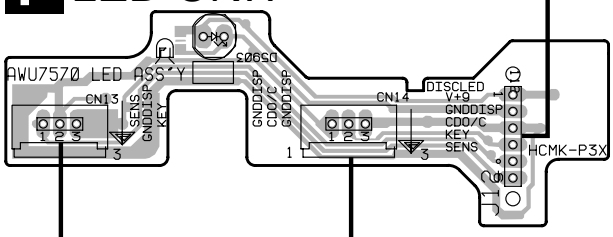
### E DISP UNIT




**SIDE A**

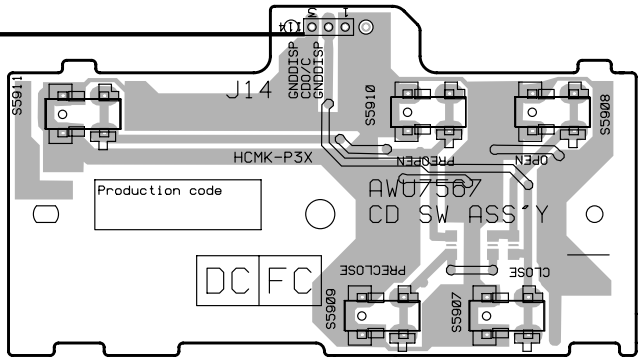
(ANP7346-B)

### F LED UNIT

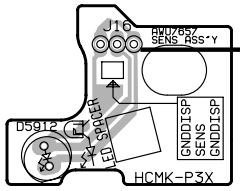



### C CN2

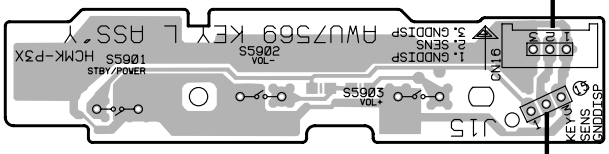
### J CD SW UNIT



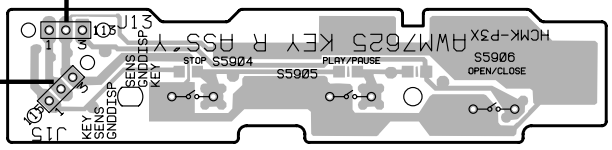

### I SENS UNIT



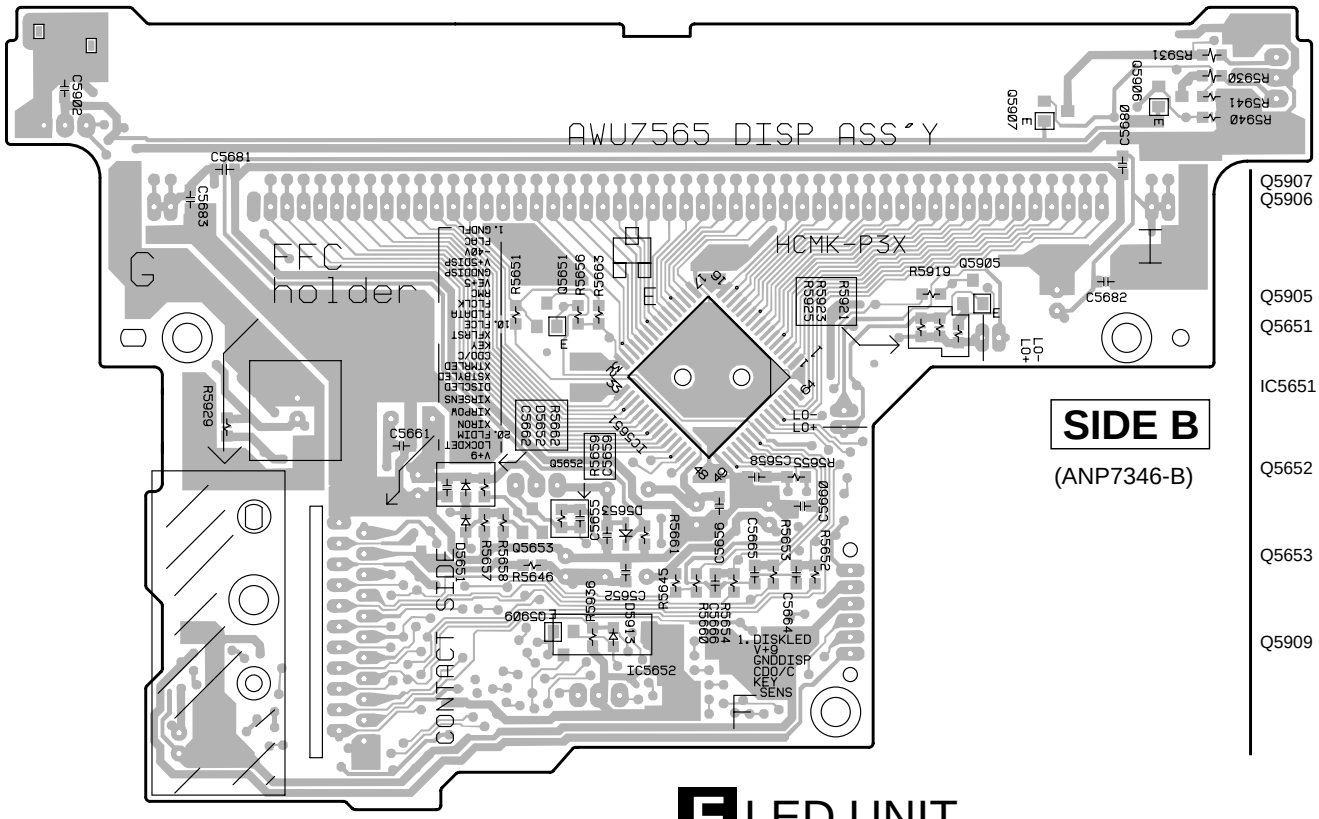

### H KEY L UNIT



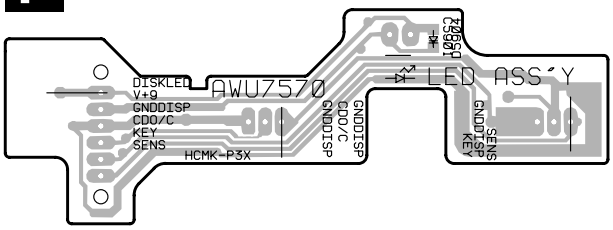

### G KEY R UNIT



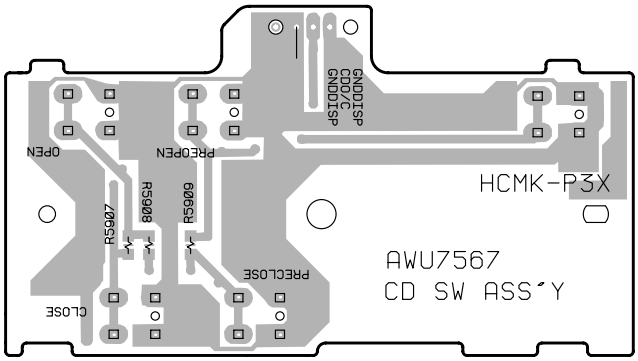
## E DISP UNIT



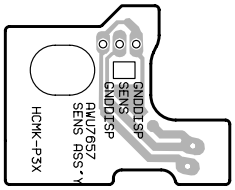

## F LED UNIT



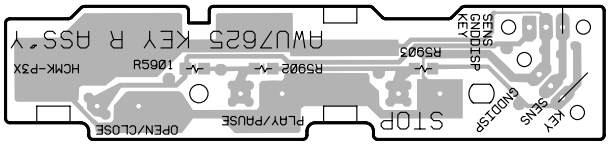

## J CD SW UNIT



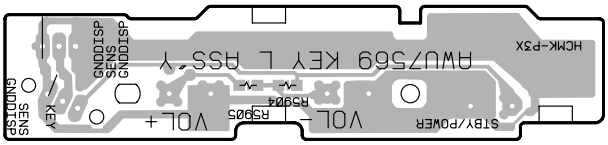

## I SENS UNIT




## G KEY R UNIT

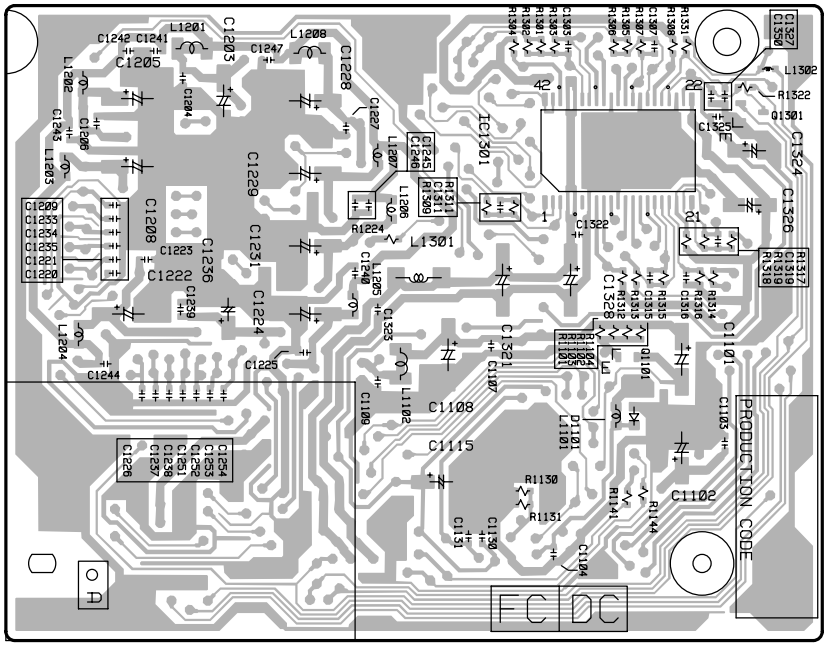



## H KEY L UNIT



## 4.4 SELF-CHACK CD ASSY and MOTOR UNIT

### B SELF-CHACK CD ASSY

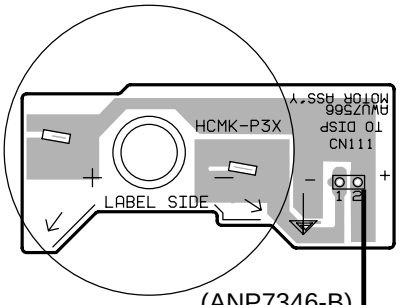



SIDE A

(ANP7358-A)

IC1301 Q1101 Q1301

### K MOTOR UNIT

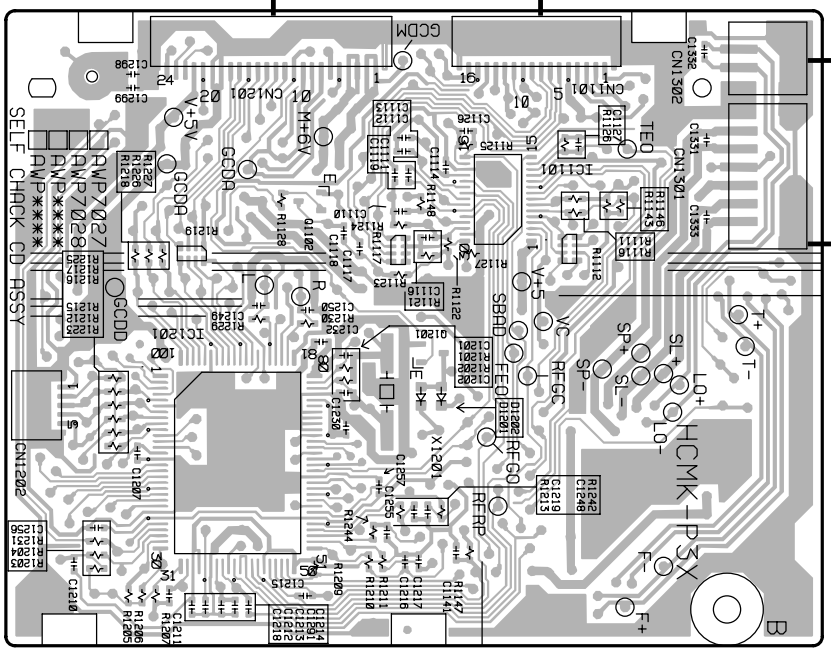



(ANP7346-B)

### B SELF-CHACK CD ASSY

C CN5

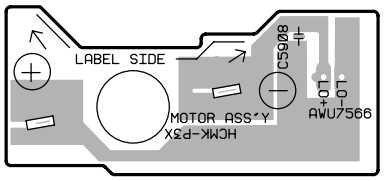
CD MECHA




(ANP7358-A)

IC1201 Q1102 Q1201 IC1101

### K MOTOR UNIT




(ANP7346-B)

CD MECHA

SIDE B

# 5. PCB PARTS LIST

*NOTES:* ●*The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

●*When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).*

| | | | | | |
|---|---|---|---|---|---|
| *560 Ω* | → | $56 \times 10^1$ | → | *561* | ..... *RD1/4PU* 5 6 1 *J* |
| *47k Ω* | → | $47 \times 10^3$ | → | *473* | ..... *RD1/4PU* 4 7 3 *J* |
| *0.5 Ω* | → | *R50* | | | ..... *RN2H* R 5 0 *K* |
| *1 Ω* | → | *1R0* | | | ..... *RS1P* 1 R 0 *K* |

*Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).*

| | | | | | |
|---|---|---|---|---|---|
| *5.62k Ω* | → | $562 \times 10^1$ | → | *5621* | ..... *RN1/4PC* 5 6 2 1 *F* |

| Mark | No. | Description | Part No. |
|---|---|---|---|

## LIST OF PCB ASSEMBLIES

| | |
|---|---|
| FM/AM TUNER MODULE | AXQ7228 |
| SELF-CHACK CD ASSY | AWP7027 |
| CD TX MAIN ASSY | AWM7528 |
| ├ MAIN UNIT | AWU7621 |
| ├ DISP UNIT | AWU7565 |
| ├ MOTOR UNIT | AWU7566 |
| ├ CD SW UNIT | AWU7567 |
| ├ AUX UNIT | AWU7568 |
| ├ KEY L UNIT | AWU7569 |
| ├ LED UNIT | AWU7570 |
| ├ KEY R UNIT | AWU7625 |
| └ SENS UNIT | AWU7657 |

## A FM/AM TUNER MODULE

### SEMICONDUCTORS

| | | |
|---|---|---|
| IC201 | | BA1451F |
| IC202 | | LC72131MD |
| Q201, Q204, Q205 | | 2SC2412K |
| Q202 | | DTA124ES |
| Q203 | | DTC124EK |
| D201 | | 1SS133 |
| D202 | | MTZJ5.1C |

### COILS AND FILTERS

| | | |
|---|---|---|
| L201 | FM DETECTOR COIL | ATE7003 |
| F202 | CERAMIC FILTER | ATF-107 |
| F201 | CERAMIC FILTER | ATF-119 |
| F203 | AM CERAMIC FILTER | ATF1155 |

### CAPACITORS

| | |
|---|---|
| C206 | CCSRCH100D50 |
| C212, C213, C226, C233–C235 | CCSRCH101J50 |
| C240 | CCSRCH101J50 |
| C231, C232 | CCSRCH150J50 |
| C223 | CEAT100M50 |
| C229 | CEAT101M10 |
| C224 | CEAT1R0M50 |
| C227 | CEAT220M25 |
| C241 | CEAT2R2M50 |
| C243 | CEAT330M16 |
| C228 | CEAT3R3M50 |
| C237 | CEAT470M10 |
| C211 | CEJA1R0M50 |
| C210 | CEJA470M16 |
| C204, C238, C602 | CKSRYB102K50 |
| C101, C102, C208, C220, C239 | CKSRYB103K50 |
| C242, C601 | CKSRYB103K50 |
| C216, C217 | CKSRYB123K50 |
| C225 | CKSRYB153K50 |
| C201, C205, C209, C214, C230 | CKSRYB223K50 |
| C236, C603 | CKSRYB223K50 |
| C221 | CKSRYB224K10 |
| C202, C222 | CKSRYB473K16 |
| C215 | CKSRYB681K50 |

### RESISTORS

| | |
|---|---|
| R211 | RD1/4PU221J |
| R221 | RD1/4PU222J |
| R233 | RD1/4PU391J |
| R243 | RS1/10S0R0J |
| R103 | RS1/10S331J |
| R104 | RS1/10S391J |
| Other Resistors | RS1/16S□□□J |

### OTHERS

| | | |
|---|---|---|
| CN201 | 13P CONNECTOR | 52044-1345 |
| BN201 | TERMINAL 4P | AKA7003 |
| | SHIELD CASE T | ANK7072 |
| | SHIELD CASE B | ANK7073 |
| X201 | CRYSTAL RESONATOR (7.2000 MHz) | ASS1093 |
| | FM FRONT END | AXF7003 |
| | AM RF TUNING BLOCK | AXX7071 |

## B SELF-CHACK CD ASSY

### SEMICONDUCTORS

| | |
|---|---|
| IC1301 | M56788FP |
| IC1101 | TA2150FN |
| IC1201 | TC9495F |
| Q1101 | 2SA1036K |
| Q1201 | DTA124EK |
| Q1301 | DTC124EK |
| Q1102 | DTC124TKA |
| D1201 | 1SS355 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **COILS AND FILTERS** | | | |
| | L1302 | | LCTB1R8K1608 |
| | L1205, L1206 | | OTL1040 |
| **CAPACITORS** | | | |
| | C1119, C1126 | | CCSRCH101J50 |
| | C1201 | | CCSRCH150J50 |
| | C1307 | | CCSRCH151J50 |
| | C1117, C1202, C1209 | | CCSRCH220J50 |
| | C1118 | | CCSRCH330J50 |
| | C1210, C1303 | | CCSRCH470J50 |
| | C1116 | | CCSRCK2R0C50 |
| | C1101, C1102, C1208, C1222, C1224 | | CEV101M16 |
| | C1231, C1328 | | CEV101M16 |
| | C1115, C1236 | | CEV101M4 |
| | C1108, C1203, C1228 | | CEV470M6R3 |
| | C1249, C1250 | | CKSRYB102K50 |
| | C1103, C1107, C1114, C1130, C1204 | | CKSRYB103K50 |
| | C1206, C1207, C1212, C1214, C1223 | | CKSRYB103K50 |
| | C1225–C1227, C1230, C1232, C1239 | | CKSRYB103K50 |
| | C1315, C1316 | | CKSRYB103K50 |
| | C1104, C1110, C1111, C1131, C1245 | | CKSRYB104K16 |
| | C1322, C1325, C1350 | | CKSRYB104K16 |
| | C1211 | | CKSRYB153K50 |
| | C1213 | | CKSRYB222K50 |
| | C1112, C1113 | | CKSRYB224K10 |
| | C1215 | | CKSRYB333K16 |
| | C1237, C1291 | | CKSRYB471K50 |
| | C1216, C1217 | | CKSRYB473K16 |
| | C1311, C1319 | | CKSRYB682K50 |
| **RESISTORS** | | | |
| | R1112 (47kΩ) | | ACN7077 |
| | R1219 (220Ω) | | DCN1093 |
| | R1117 (10kΩ) | | DCN1094 |
| | R1318 | | RS1/16S1202F |
| | R1319 | | RS1/16S2202F |
| | R1317 | | RS1/16S2702F |
| | Other Resistors | | RS1/16S□□□J |
| **OTHERS** | | | |
| | CN1101 | 16P CONNECTOR | RKN1057 |
| | CN1201 | 24P CONNECTOR | RKN1065 |
| | CN1302 | CONNECTOR | S2B-PH-SM3 |
| | CN1301 | CONNECTOR | S6B-PH-SM3 |
| | X1201 | CRYSTAL RESONATOR (16.9MHz) | VSS1084 |

## C MAIN UNIT

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC3502–IC3504 | | BA4558F-HT |
| | IC3501 | | BU4052BCF |
| | IC551 | | BU4069UB |
| ⚠ | IC501 | | NJM7805FA |
| ⚠ | IC502 | | NJM7905FA |
| | IC5501 | | PDC061A |
| | Q552 | | 2SB1237X |
| | Q3501–Q3504, Q501, Q5501, Q5504 | | 2SC2412K |
| | Q551 | | 2SD1858X |
| | Q5502, Q5503, Q5505 | | DTC124EK |
| | D505–D507, D551–D556 | | 1SR154-400 |
| | D3501, D3551, D3552, D5503, D5504 | | 1SS355 |
| | D5506 | | 1SS355 |
| | D3503–D3506, D503 | | UDZ11B |
| | D559 | | UDZ15B |
| | D5501, D5505 | | UDZS6.8B |
| **COILS AND FILTERS** | | | |
| | L1651, L5501 | | LFEA220J |
| | L551, L552 | | LFEA680J |
| **CAPACITORS** | | | |
| | C5507 | | ACH1246 |
| | C5513, C5521–C5524, C5532, C5533 | | CCSQCH101J50 |
| | C5535, C5536 | | CCSQCH101J50 |
| | C3558 | | CCSQCH331J50 |
| | C563–C565 | | CCSQSL391J50 |
| | C3513, C3514, C3519, C3520 | | CCSRCH101J50 |
| | C5511, C5512, C5528, C5531, C5534 | | CCSRCH101J50 |
| | C559, C566 | | CEAL101M10 |
| | C508, C556, C558, C560 | | CEAL470M16 |
| | C552, C554, C555, C557, C571 | | CEAL470M25 |
| | C553 | | CEAL470M35 |
| | C5501 | | CEAT100M50 |
| | C1651, C501, C502, C505, C506 | | CEAT101M10 |
| | C5506, C5509 | | CEAT101M10 |
| | C5504 | | CEATR10M50 |
| | C3511, C3512 | | CEJQ101M10 |
| | C3523, C3524, C3535, C3536 | | CEJQ220M10 |
| | C3521, C3522 | | CEJQ2R2M50 |
| | C1652, C1653, C3509, C3510, C509 | | CKSQYB103K50 |
| | C5502 | | CKSQYB103K50 |
| | C5519, C5520, C5525–C5527 | | CKSQYB152K50 |
| | C551, C561, C562, C567 | | CKSQYB473K50 |
| | C3557, C5503, C5505, C5508 | | CKSQYF104Z25 |
| | C569, C570 | | CKSQYF104Z25 |
| | C3537, C3538 | | CKSQYF105Z16 |
| | C5517, C5518 | | CKSRYB103K50 |
| | C5510, C5530 | | CKSRYF104Z25 |
| **RESISTORS** | | | |
| ⚠ | R5573, R5574, R5576 | | RS1/10S1002F |
| | R3521, R3522, R3547, R3548 | | RS1/10S4701F |
| | R3549–R3551, R3553, R3554 | | RS1/10S5101F |
| | R3563, R3564 | | RS1/16S0R0J |
| | R3527, R3528 | | RS1/16S101J |
| | R5584 | | RS1/16S102J |
| | R3505, R3506 | | RS1/16S103J |
| | R3537, R3538, R5578, R5585 | | RS1/16S104J |
| | R3507, R3508 | | RS1/16S123J |
| | R5551 | | RS1/16S153J |
| | R3556, R3559 | | RS1/16S181J |
| | R5583 | | RS1/16S182J |
| | R3541, R3542, R5552, R5553, R5555 | | RS1/16S222J |
| | R5558, R5575 | | RS1/16S223J |
| | R5577, R5579 | | RS1/16S333J |
| | R3519, R3520 | | RS1/16S4701F |
| | R3525, R3526 | | RS1/16S470J |
| | R5512, R5513, R5538, R5548, R5549 | | RS1/16S471J |
| | R5554, R5567 | | RS1/16S471J |
| | R3543, R3544 | | RS1/16S472J |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | R5580 | | RS1/16S473J |
| | R3552 | | RS1/16S5101F |
| ⚠ | R5588 | | RS1/16S5602F |
| | R5524–R5526, R5532–R5536 | | RS1/16S563J |
| | R5557 | | RS1/16S822J |
| | Other Resistors | | RS1/10S□□□J |

### OTHERS

| | | |
|---|---|---|
| CN7 | CONNECTOR 4P | 04R-FJ |
| CN6 | SOCKET(15P) | AKP1038 |
| CN4 | 20P SOCKET | AKP7129 |
| 1 | SHIELD CASE | ANK7082 |
| 1651 | BUZZER | APV7002 |
| CN1 | 13P CONNECTOR | FF3-13-S15 |
| CN2 | 22P CONNECTOR | FF3-22-S15 |
| JA1651 | OPTICAL LINK OUT | GP1FA550TZ |
| CN5 | 24P CONNECTOR | VKN1428 |
| KN1 | EARTH METAL FITTING | VNF1084 |
| X5501 | CERAMIC RESONATOR (10MHz) | DSS1048 |

## D AUX UNIT

### CAPACITORS

| | |
|---|---|
| C3501–C3504 | CCSQSL331J50 |

### RESISTORS

| | |
|---|---|
| All Resistors | RS1/10S□□□J |

### OTHERS

| | | |
|---|---|---|
| CN107 | CONNECTOR 4P | 04PL-FJ |
| JA3501 | 2P PIN JACK | VKB1031 |

## E DISP UNIT

### SEMICONDUCTORS

| | |
|---|---|
| IC5651 | MSM9202-01 |
| IC5652 | PD5601A |
| Q5910 | 2SA1037K |
| Q5652 | 2SB1238X |
| Q5653, Q5903 | 2SC2412K |
| Q5906, Q5907, Q5909, Q5912 | DTA143EK |
| Q5908 | DTC124EK |
| D5651, D5652, D5913 | 1SS355 |
| D5909 | UDZ3.0B |
| D5653 | UDZS8.2B |
| D5908 | VRPG5615S |

### COILS AND FILTERS

| | |
|---|---|
| L5652 | LFEA100J |
| L5651 | LFEA220J |
| L5653 | LFEA680J |

### CAPACITORS

| | |
|---|---|
| C5664–C5666 | CCSQCH101J50 |
| C5658 | CCSQCH470J50 |
| C5657, C5663 | CEJA100M50 |
| C5651, C5654, C5903 | CEJA101M10 |
| C5906 | CEJA101M6R3 |
| C5679 | CEJA330M35 |
| C5904 | CEV101M4 |
| C5902 | CKSQYB103K50 |
| C5655, C5656, C5661, C5662 | CKSQYB473K50 |
| C5680, C5681 | CKSQYB473K50 |
| C5652, C5660 | CKSQYF104Z25 |
| C5653, C5905 | CKSRYF104Z25 |

### RESISTORS

| | |
|---|---|
| R5932 | RS1/16S102J |
| R5946 | RS1/16S103J |
| R5914 | RS1/16S222J |
| R5939 | RS1/16S270J |
| R5944 | RS1/16S330J |
| R5949 | RS1/16S390J |
| R5664 | RS1/16S3R9J |
| R5945 | RS1/16S472J |
| R5942 | RS1/16S821J |
| Other Resistors | RS1/10S□□□J |

### OTHERS

| | | |
|---|---|---|
| 12 | 6P CABLE HOLDER | 51048-0600 |
| CN102 | CONNECTOR 22P | 52492-2220 |
| V5651 | FL TUBE | AAV7077 |
| | FL SPACER | AEB7199 |
| 5901 | REMOTE RECEIVER UNIT | GP1U27X |
| X5902 | CERAMIC RESONATOR (3.84MHz) | ASS7029 |

## F LED UNIT

### SEMICONDUCTORS

| | |
|---|---|
| D5903 | NSPB500-0008 |

### CAPACITORS

| | |
|---|---|
| C5901 | CKSQYF104Z25 |

### OTHERS

| | | |
|---|---|---|
| 112 | 6P CABLE HOLDER | 51048-0600 |
| CN13, CN14 | 3PJUMPER CONNECTOR | 52151-0310 |
| J12 | PARALLEL WIRE 6P | D20PYY0615E |

## G KEY R UNIT

### SWITCHES AND RELAYS

| | |
|---|---|
| S5904–S5906 | ASG7013 |

### RESISTORS

| | |
|---|---|
| All Resistors | RS1/10S□□□J |

### OTHERS

| | | |
|---|---|---|
| 113, 15 | 3P CABLE HOLDER | 51048-0300 |
| J13, J15 | JUMPER WIRE 3P | ADD7262 |

| Mark | No. | Description | Part No. |
|---|---|---|---|

## H KEY L UNIT

### SWITCHES AND RELAYS

| | | | |
|---|---|---|---|
| | S5901–S5903 | | ASG7013 |

### RESISTORS

| | | | |
|---|---|---|---|
| | All Resistors | | RS1/10S□□□J |

### OTHERS

| | | | |
|---|---|---|---|
| | 115 | 3P CABLE HOLDER | 51048-0300 |
| | CN16 | 3PJUMPER CONNECTOR | 52151-0310 |

## I SENS UNIT

### SEMICONDUCTORS

| | | | |
|---|---|---|---|
| | D5912 | | SIR-56ST3F |

### OTHERS

| | | | |
|---|---|---|---|
| | J16 | JUMPER WIRE 3P | ADD7263 |
| | | LED SPACER | AEB7204 |

## J CD SW UNIT

### SWITCHES AND RELAYS

| | | | |
|---|---|---|---|
| | S5907–S5910 | | ASG7023 |

### RESISTORS

| | | | |
|---|---|---|---|
| | All Resistors | | RS1/10S□□□J |

### OTHERS

| | | | |
|---|---|---|---|
| | 114 | 3P CABLE HOLDER | 51048-0300 |
| | J14 | JUMPER WIRE 3P | ADD7262 |

## K MOTOR UNIT

### CAPACITORS

| | | | |
|---|---|---|---|
| | C5908 | | CKSQYF104Z25 |

### OTHERS

| | | | |
|---|---|---|---|
| | CN111 | CONNECTOR | S2B-PH-K-S |

# 6. ADJUSTMENT

## 6.1 TEST MODE

**Kind of test mode**
The following four modes exist.
The door opening function with the infrared rays sensor becomes off in the test mode (Infrared rays is not irradiated).

**1-1. TEST mode. (TEST)** : For adjustment in main body distance of production line
**1-2. Unit TEST mode. (UTEST)** : For inspection by the function checker of production line

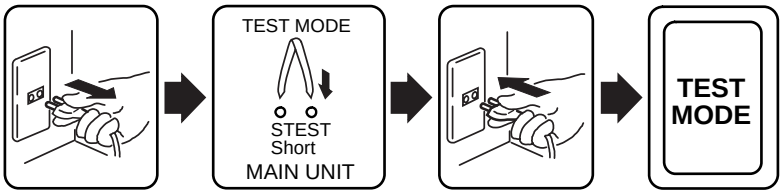
**1-3. Service TEST mode. (STEST)** : For inspection by service
It is not possible to operate at all by recognition because of there is no AC pulse if it is CD tuner alone and there is no part AMP as the power failure.
Then, to be able to move the CD tuner, mode yet in the inconvenience without the part AMP.
It is possible to operate only in the CD tuner even if the part AMP is not connected.
An initial function becomes CD if the product starts in this mode, and CD becomes CD TEST mode different from a usual operation.
Even if the function is returned to the CD function again, the product does not become CD TEST mode when the function is made functions other than CD once. The product becomes a usual CD operation.
To put the product from the state in the CD TEST mode, the remote control code of A25F is received.

**1-4. CD TEST mode. (STEST)** : For inspection by service
When the remote control code of A25F is received at the CD function when it is on, power becomes CDTEST mode.
The CD tuner is effective to this even the ordinary mode.
However, the product becomes off this mode when the function is changed besides CD.
The step in the part CD can operate. From LD ON to SPDL LOCK , TRKG ON/OFF and etc.

### 6.1.1 How to Start/Cancel Service Test Mode

NOTE: There is no information to be shown in this CD adjustment.

**TEST MODE : ON**




An initial function becomes CD, then becomes CD TEST MODE. And becomes a blank display [ : ].

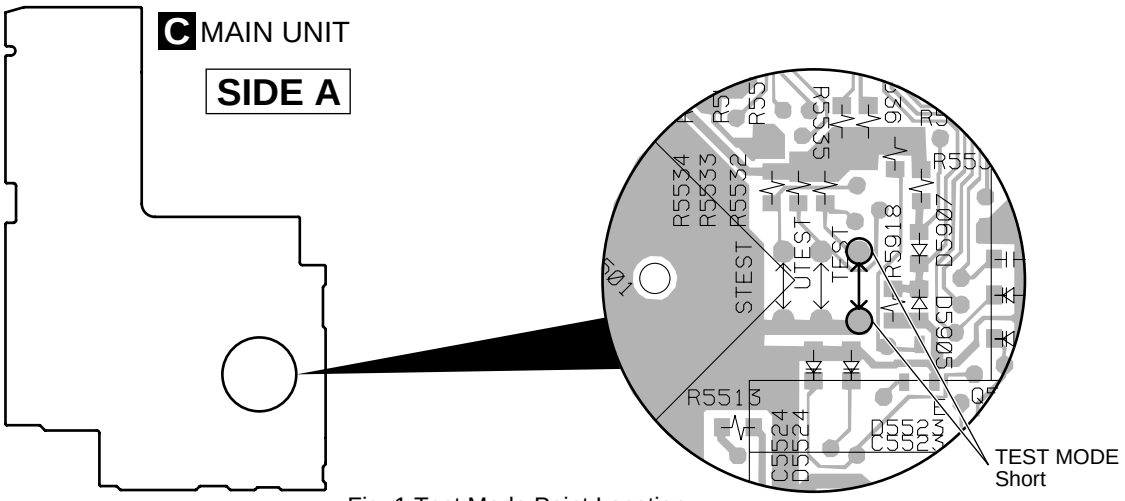
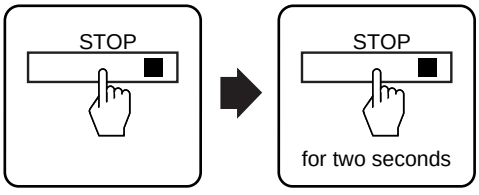



Fig. 1 Test Mode Point Location

**CD TEST MODE : CANCEL**



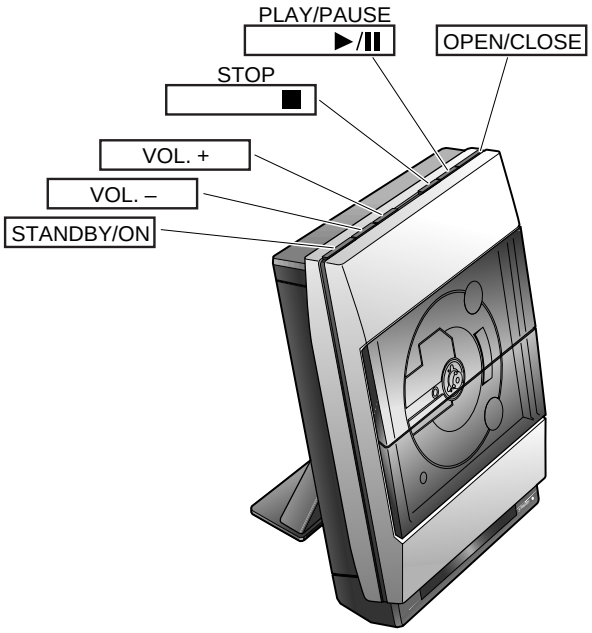

The function is changed.
Becomes a usual CD operation

**TEST MODE : STOP**

## 6.1.2 Function And Operation In CD Test Mode

| Main body key | Single goods CD remote control unit | Operation condition | Content of operation | FL display |
|---|---|---|---|---|
| OPEN/CLOSE | (None) | When CD STOP | The CD tray opens and close. | |
| STOP | STOP | When CD STOP | The function is changed. | |
| | | When Servo ON | All servos are turned off. | CD : |
| POWER (∗1) | RANDOM (A24A) | When CD STOP | LD is turned on, and auto focus is done. | FOCUS ON |
| PLAY/PAUSE | PLAY (A217) | After FOK | The spindle is kicked. And, the self adjustment processing tracking servo is turned on and MUTE is released. (∗2) | SPNDL KICK ↓ SERVO ON |
| PLAY/PAUSE | PLAY (A217) | When TRK SERVO OFF | The tracking servo is turned on, and MUTE is released. | SERVO ON |
| PLAY/PAUSE | PLAY (A217) PAUSE (A218) | When TRK SERVO ON | The tracking servo is turned off, and MUTE is put. | SERVO OFF |
| VOL UP | TRK UP (A210) | When TRK SERVO ON | The tracking servo is turned off, MUTE is put, and the slider is moved in the direction of FWD. | CD XX : XX ↓ SERVO OFF |
| VOL DOWN | TRK DOWN (A211) | When TRK SERVO ON | The tracking servo is turned off, MUTE is put, and the slider is moved in the direction of RVS. | CD XX : XX ↓ SERVO OFF |
| (None) (∗3) | PGM (A20D) | When CD has Stopped | LDON → Auto focus → Spindle kick → Self adjustment → TOC lead → The 2th search → Tracking servo ON → MUTE release | FOCUS ON ↓ SPNDL KICK ↓ SERVO ON |

∗1 Method of making POWER OFF when there is no remote control.
The function is changed besides CD keeping pushing the STOP key again for two seconds after CD is stopped with the STOP key.
And, please push the POWER key.
∗2 If the slider is not sent to outer a little to turn on the servo by surroundings the in DISC, the sound is not occasionally emitted.
∗3 It is possible to operate only by remote control for the unit check mode.



## 6.2 TUNER SECTION

### ■ AM Tuner Section

• There is no adjustment in the AM tuner.

### ■ FM Tuner Section

• Set the mode selector to FM BAND.
• Connect the wiring as shown in Fig. 1.

| Step No. | Adjustment Title | ANT. Input level and signal condition | | | Adjustment | |
|---|---|---|---|---|---|---|
| | | Frequency (MHz) | Modulation | Input Level (dBμV) | Adjust point | Contents |
| 1 | T-METER Adjustment | 98 | OFF | 80 | L201 | Adjust L201 so that the DC voltage between Pin 21 and Pin 23 of IC201 (Test point Vtm) gets within 0 ± 50mV. |

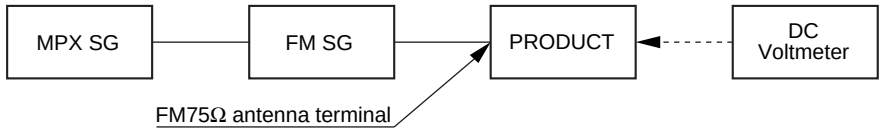



Fig.1 Adjustment Wiring Diagram

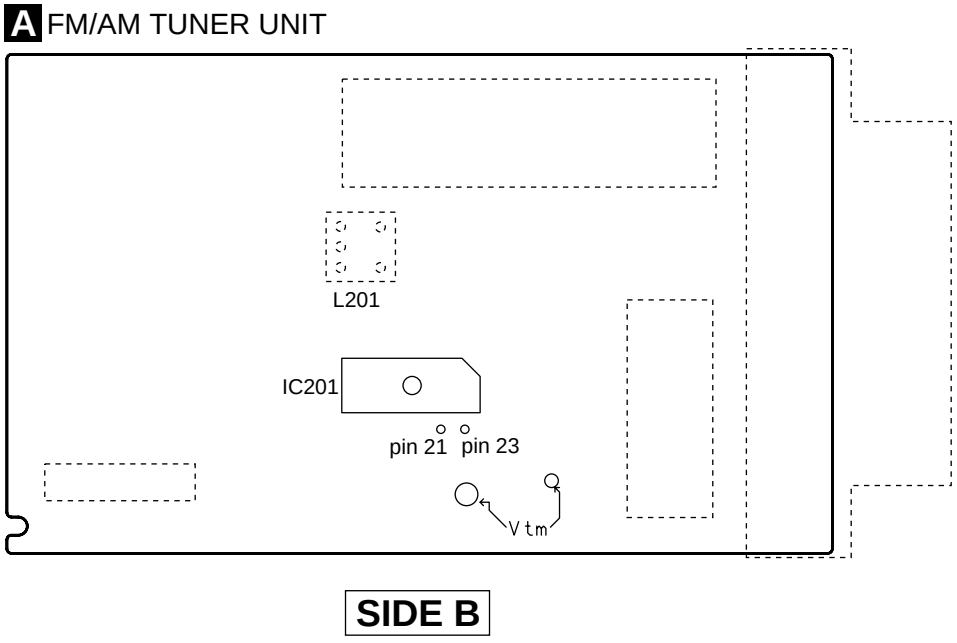


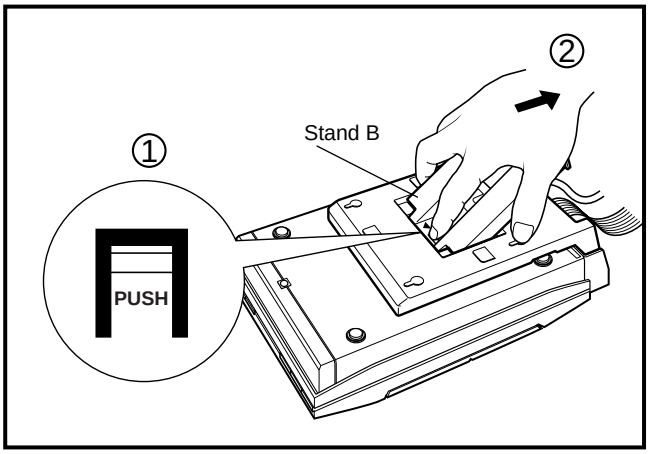

Fig.2 Adjustment Point

# 7. GENERAL INFORMATION

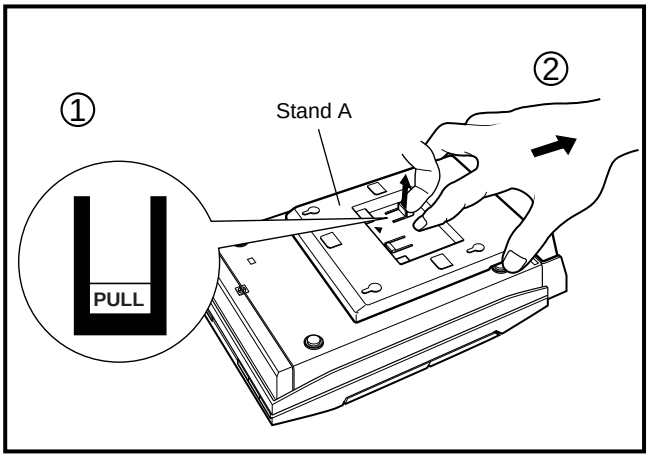
## 7.1 DIAGNOSIS

### 7.1.1 DISASSEMBLY

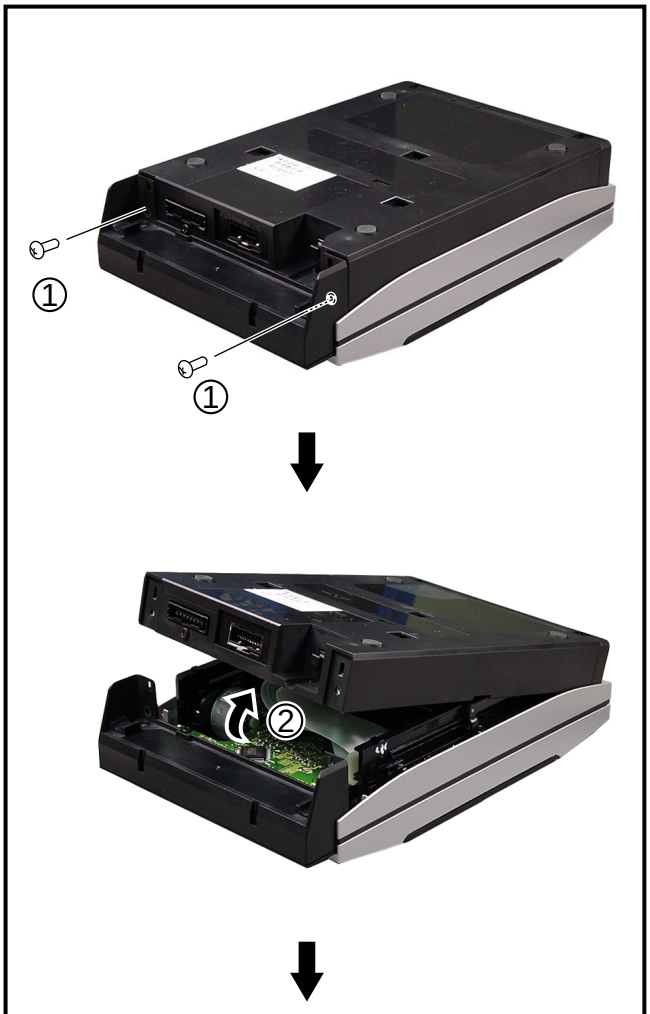
■ **STAND B**



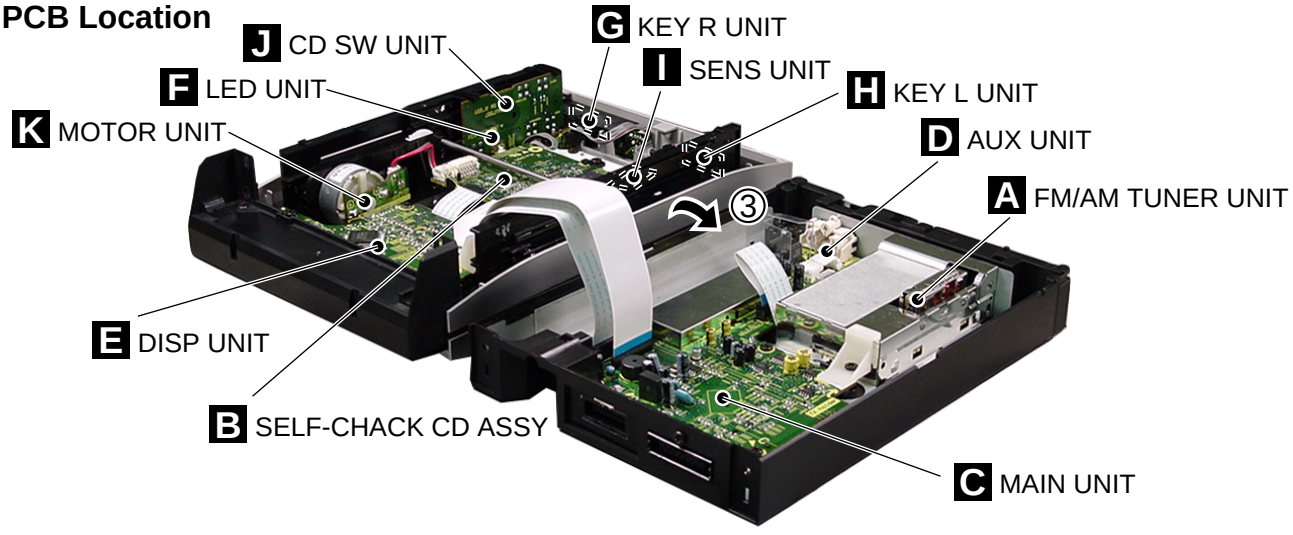

■ **STAND A**



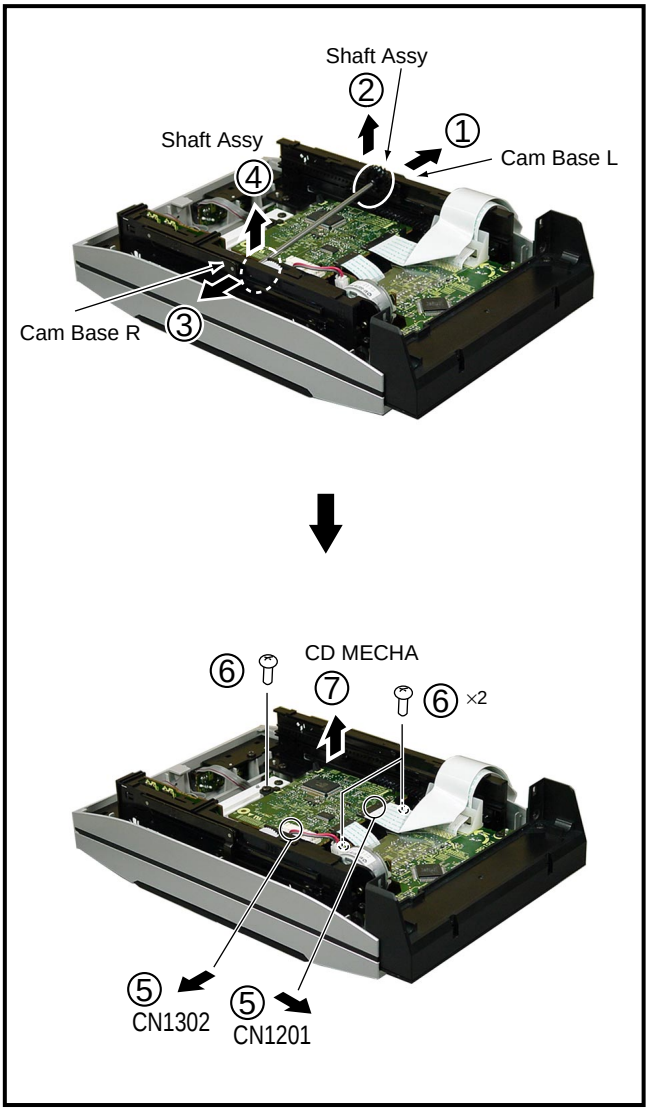

■ **BOTTOM BASE**



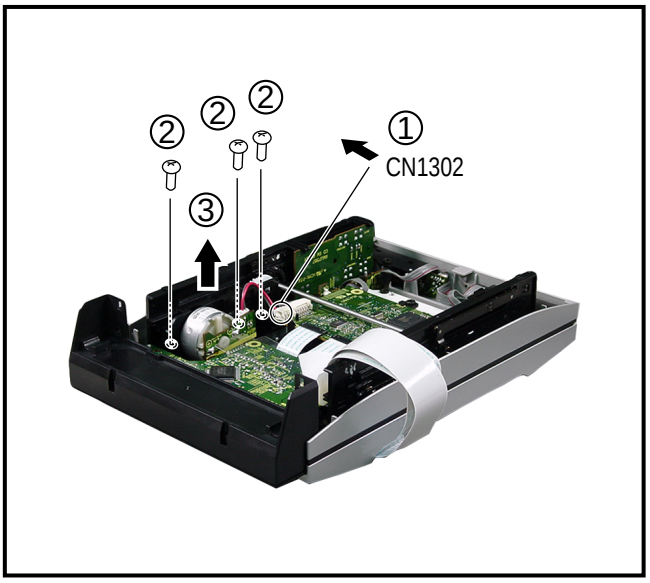

■ **PCB Location**



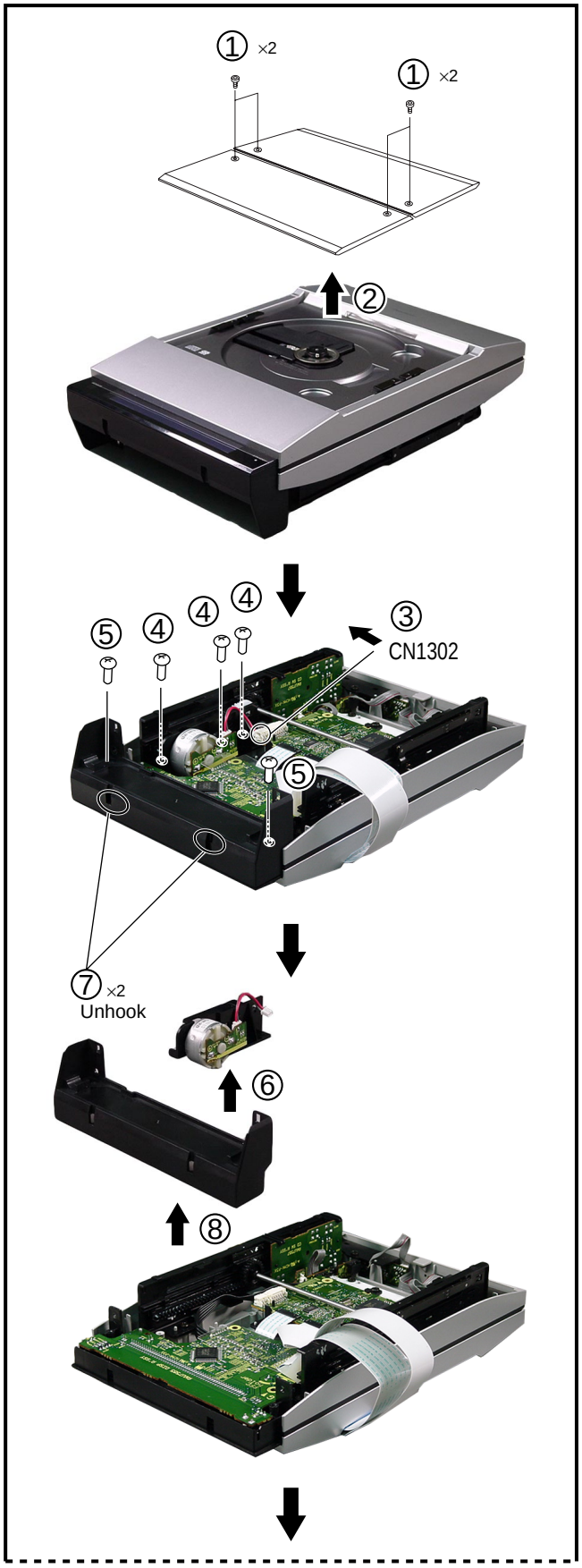
## ■ CD MECHA

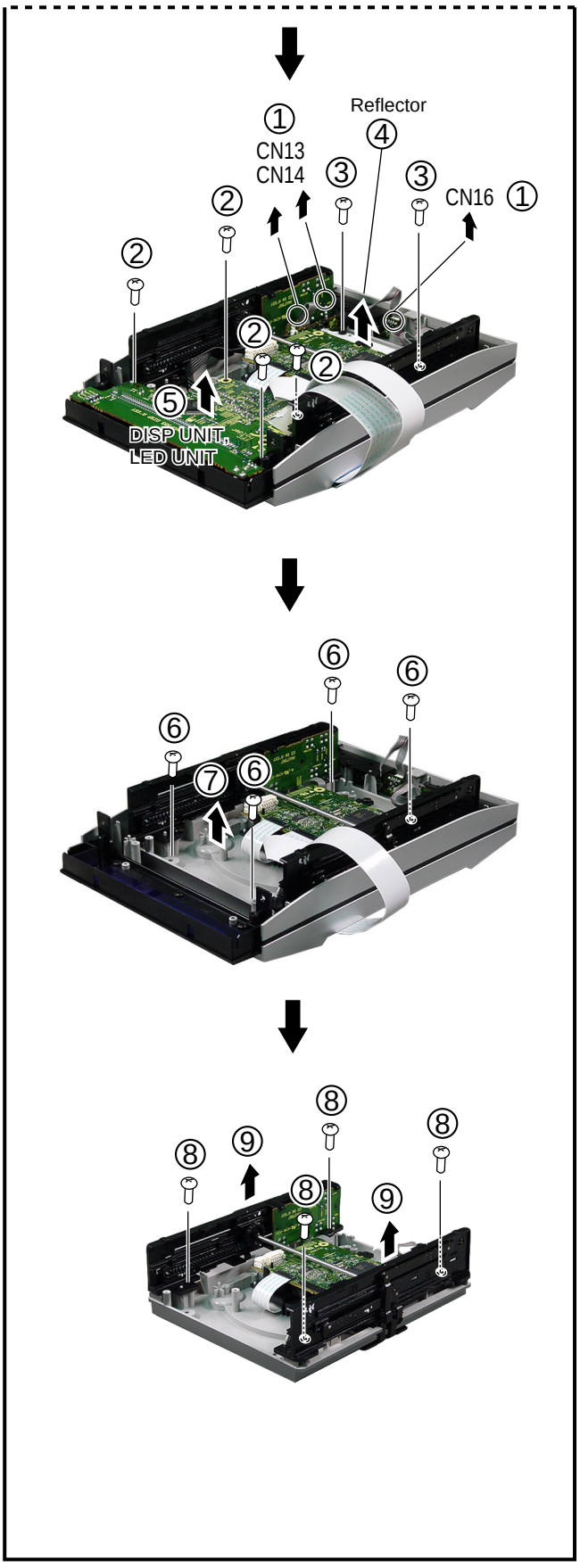



## ■ MOTOR ASSY

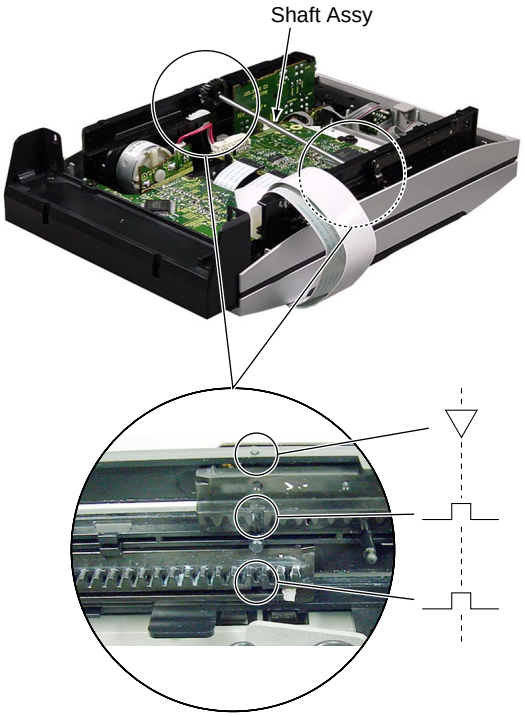



## ■ CAM BASE



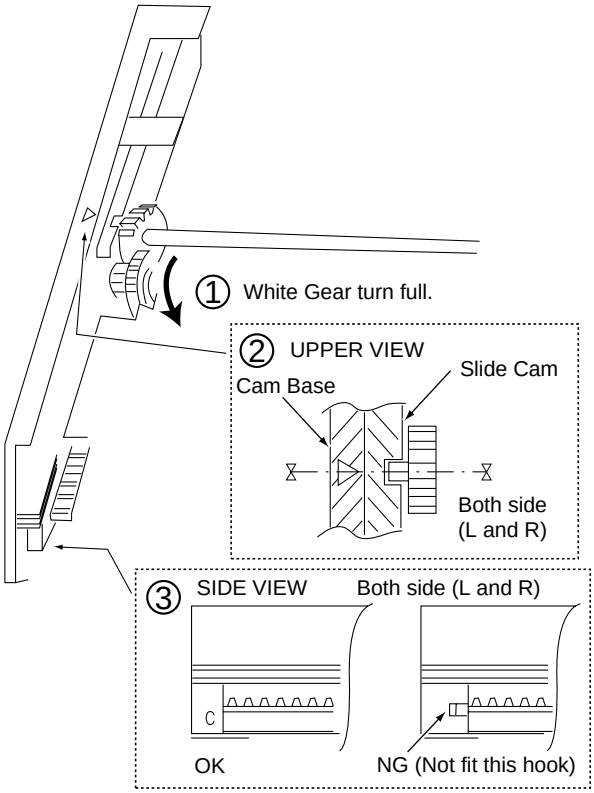



## ■ Installation position match of Shaft Assy



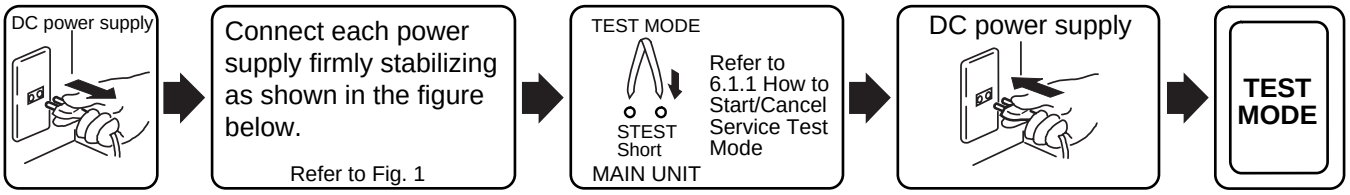

The mark stand straight in line.
Be careful that Slide Cam doesn't move at fitting Shaft Assy.

## ■ Gear miss check point



## 7.1.2 SINGLE OPERATION METHOD

**TEST MODE : ON** Service TEST mode. (STEST)




An initial function becomes CD, then becomes CD TEST MODE. And becomes a blank display [ : ].
So that usual CD may operate, Return the function to the CD function again after making the function functions other than CD. (The function can be changed by keeping pushing main body STOP key for two seconds. )

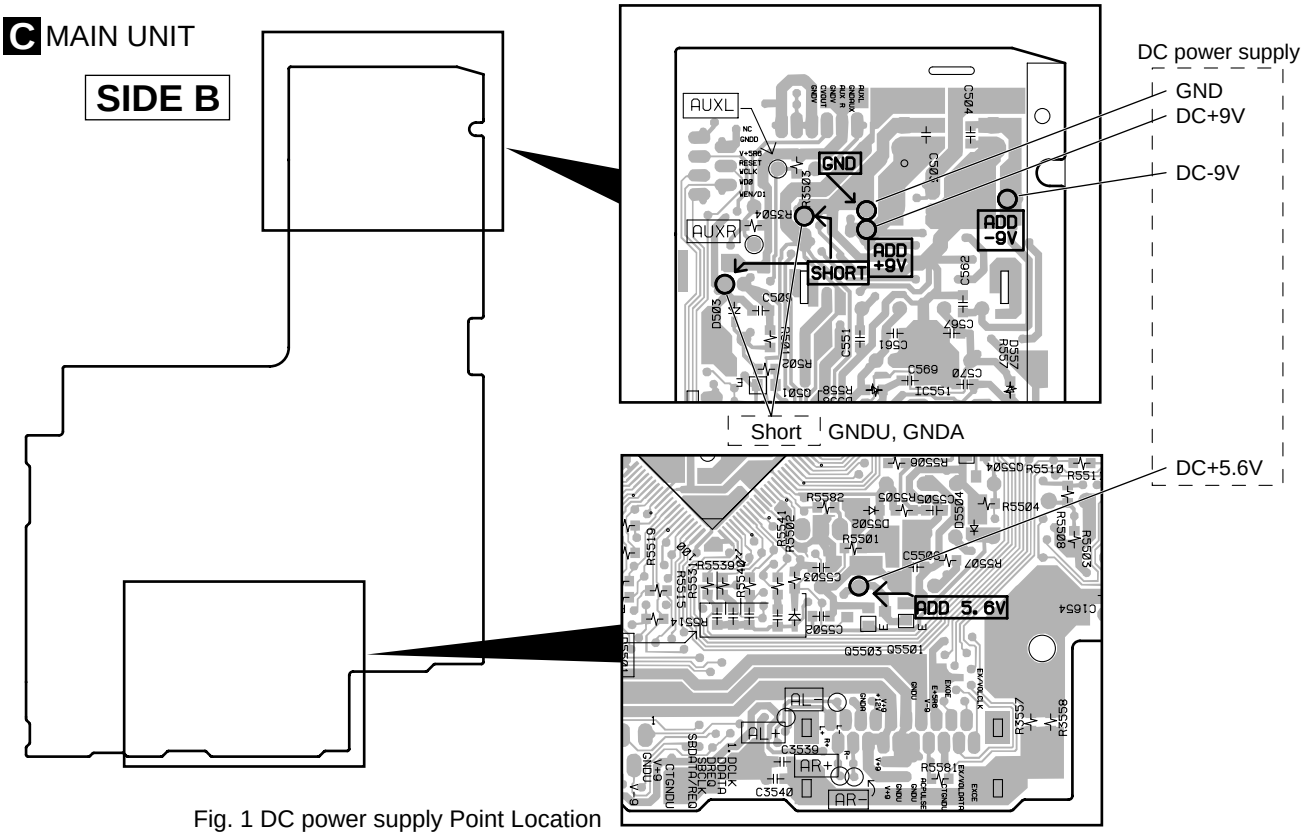



Fig. 1 DC power supply Point Location

**Function and operation in service TEST mode.**
Difference with the ordinary mode.
It is possible to operate even if there is no AC pulse.
It is possible to operate only in the CD tuner if a necessary DC power supply is supplied even if there is no part AMP.
The compulsion power off function by fan detection and the protecting function is released.
A wrong part was made easy to diagnose.
An initial function becomes CD TEST mode by CD and is usually different from the CD operation.
The function can be changed by keeping pushing main body STOP key for two seconds.
Other functions and the operations are the same as the ordinary mode.

**TEST MODE : STOP**

To come off the test mode, AC OFF.
The test mode is not completely cleared in POWER OFF key and AC OFF, please.

# 7.2 PARTS

## 7.2.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

## ■ PDC061A (MAIN UNIT : IC5501)

**• System Control IC**

**● Pin Function**

| No. | Pin Name | I/O | MOS | Function | Pin Function | Active |
|---|---|---|---|---|---|---|
| 1 | BEEP | O | C | Port | BEEP Output | - |
| 2 | BUS0 | I/O | C | Port | CD LSI Communication Bus | - |
| 3 | BUCK | O | C | Port | CD LSI Communication Bus Clock | - |
| 4 | FLCE | O | C | Port | FL Driver CE | |
| 5 | TXMUTE | O | C | Port | FM/AM Tuner module Mute | |
| 6 | TXCLK | O | C | Port | FM/AM Tuner module Control Clock | - |
| 7 | TXDI | O | C | Port | FM/AM Tuner module Control Data | |
| 8 | TXCE | O | C | Port | FM/AM Tuner module Control CE | |
| 9 | XRDSON | O | C | Port | RDS Decoder Control (H : Stop) | L |
| 10 | (DEBUG) | O | C | Port | Not used | - |
| 11 | XRESET | I | - | RESET | RESET | L |
| 12 | (NC) | - | - | | Connect VDD1 for Not used | - |
| 13 | (NC) | - | - | | Open for Not used | - |
| 14 | GND | - | - | GND | GND | - |
| 15 | CF1 | - | - | SERALOCK | Seramic resonator Connected terminal | - |
| 16 | CF2 | - | - | SERALOCK | Seramic resonator Connected terminal | - |
| 17 | VDD | - | - | VDD | VDD | - |
| 18 | XFLRST | O | N | Port | FL Driver Hardware Reset | L |
| 19 | KEY | I | N | Anarog Input | KEY Input | - |
| 20 | CD O/C | I | N | Anarog Input | CD DOOR SW Input | - |
| 21 | (NC) | O | N | Port | Not used | - |
| 22 | (NC) | O | N | Port | Not used | - |
| 23 | XCDRST | O | N | Port | CD LSI Hardware Reset | L |
| 24 | PROTECT | I | N | Anarog Input | Measures of short test with Summing circuit | - |
| 25 | DSTN | I | N | Anarog Input | Destination Switch | - |
| 26 | ACPULSE | I | N | INT0 Port | AC Pulse Input | - |
| 27 | XCDCE | O | C | INT1 Port | CD LSI CE | |
| 28 | RDSCLK | I | C | INT2 Port | Clock Input from RDS Decoder (Without RDS : Low Output) | - |
| 29 | RMC | I | C | INT3 Port | Remote Control Signal Input | - |
| 30 | (NC) | O | P | VFD Controller | Prohibition of use only for VFD | - |
| 31 | (NC) | O | P | VFD Controller | Prohibition of use only for VFD | - |
| 32 | (NC) | O | P | VFD Controller | Prohibition of use only for VFD | - |
| 33 | (NC) | O | P | VFD Controller | Prohibition of use only for VFD | - |
| 34 | (NC) | O | P | VFD Controller | Prohibition of use only for VFD | - |
| 35 | (NC) | O | P | VFD Controller | Prohibition of use only for VFD | - |
| 36 | (NC) | O | P | VFD Controller | Prohibition of use only for VFD | - |
| 37 | (NC) | O | P | VFD Controller | Prohibition of use only for VFD | - |
| 38 | (NC) | O | P | VFD Controller | Prohibition of use only for VFD | - |
| 39 | (NC) | O | P | Port | Not used | - |
| 40 | (NC) | O | P | Port | Not used | - |
| 41 | (NC) | O | P | Port | Not used | - |
| 42 | (NC) | O | P | Port | Not used | - |
| 43 | (NC) | O | P | Port | Not used | - |
| 44 | (NC) | O | P | Port | Not used | - |
| 45 | (NC) | O | P | Port | Not used | - |
| 46 | VDD | - | - | VDD | VDD | - |
| 47 | (NC) | O | P | Port | Not used | - |
| 48 | (NC) | O | P | Port | Not used | - |
| 49 | XCDDROFF | O | P | Port | CD Door Driver Control ON/OFF (0 : OFF, 1 : Drive ON) | L |
| 50 | CDSLEEP | O | P | Port | CD LSI Function Stop (0 : OFF, LSI Stop : LSI Operation) | H |

| No. | Pin Name | I/O | MOS | Function | Pin Function | Active |
|---|---|---|---|---|---|---|
| 51 | GND | - | - | | | - |
| 52 | ZDET | I | P | Port | CD Zero Detection Input | |
| 53 | CDINSIDE | I | P | Port | CD INSIDE SW Input | |
| 54 | LOADIN | O | P | Port | CD Door Driver Control (Direction where door is closed) | H |
| 55 | LOADOUT | O | P | Port | CD Door Driver Control (Direction where door is opened) | H |
| 56 | XTMRLED | O | P | Port | Timer Standby Display LED Control | L |
| 57 | XSTBYLED | O | P | Port | Standby Display LED Control | L |
| 58 | DISCLED | O | P | Port | DISC LED Control, lights brightly *3 | H |
| 59 | LEDDEMA | O | P | Port | DISC LED Control, lights a little darkly *3 | H |
| 60 | LEDDEMB | O | P | Port | DISC LED Control, lights considerably darkly *3 | H |
| 61 | XIRON | O | P | Port | Infrared RadiationControl for Sensor | L |
| 62 | FLDIMA | O | P | Port | FL Dimmer Control A | |
| 63 | FLDIMB | O | P | Port | FL Dimmer Control B | |
| 64 | (NC) | O | P | Port | Not used | |
| 65 | TXDO | I | P | Port | Data Input from FM/AM Tuner module | - |
| 66 | RDSDATA | I | P | Port | Data Input from RDS Decoder | - |
| 67 | XSTEREO | I | P | Port | STEREO Detection Input | |
| 68 | XTUNED | I | P | Port | TUNED Detection Input | L |
| 69 | ATT | O | P | Port | LINE Input ATT Control | H |
| 70 | CDMUTE | O | P | Port | CD Output Mute | H |
| 71 | 4052B | O | P | Port | BU4052BCF Control A *1 | - |
| 72 | VDD | - | - | VDD | VDD | - |
| 73 | 4052A | O | P | Port | BU4052BCF Control B *1 | - |
| 74 | (NC) | O | P | Port | Not used | - |
| 75 | XIRPOW | O | P | Port | Remote Control Microcomputer Power Supply Control | L |
| 76 | TEST | I | P | Port | CD Core Checker Mode Detection Jumper | L |
| 77 | UTEST | I | P | Port | Unit Test Mode Detection Jumper | L |
| 78 | SERVICE | I | P | Port | Service Mode Detection Jumper | L |
| 79 | (NC) | O | P | Port | Not used | - |
| 80 | WCLK | I | P | Port | For Flash Rewrite | - |
| 81 | (NC) | O | P | Port | Not used | - |
| 82 | (NC) | O | P | Port | Not used | - |
| 83 | SBDI | I | P | Port | System Bus Received Data | - |
| 84 | XEMR | I | P | Port | Signal of emergency generation from amplifier | L |
| 85 | SBDO/REQ | O | C | Port | System Bus Sending Data / Request | - |
| 86 | SBCLK | O | C | Port | System Bus Clock | - |
| 87 | DREQ | O | C | Port | Display Data Communication Request | - |
| 88 | EXOE | O | C | Port | BU4094BCF Output E , Using combinedly with WD0 for Flash Rewrite *3 | H |
| 89 | GND | - | - | GND | GND | - |
| 90 | VDD | - | - | VDD | VDD | - |
| 91 | EX/V DATA | O | C | Port | BU4094BCF / VOL-IC Control Data *3 | - |
| 92 | EX/V CLK | O | C | Port | BU4094BCF / VOL-IC Control Clock *3 | - |
| 93 | EXCE | O | C | Port | BU4094BCF CE , Using combinedly with WEN/D1 for Flash Rewrite *3 | H |
| 94 | FLDATA | O | C | Port | FL Driver Control Data | - |
| 95 | FLCLK | O | C | Port | FL Driver Control Clock | - |
| 96 | DDATA | I | C | Hard Serial | Display Data Communication Received Data | - |
| 97 | DCLK | I | C | Hard Serial | Display Data Communication Clock | - |
| 98 | BUS3 | I/O | C | Port | CD LSI Communication Bus | - |
| 99 | BUS2 | I/O | C | Port | CD LSI Communication Bus | - |
| 100 | BUS1 | I/O | C | Port | CD LSI Communication Bus | - |

***1 : Change of function. The truth value table of BU4052BCF.**

| A | B | Switch turned on | Function |
|---|---|---|---|
| L | L | X0, Y0 | CD |
| H | L | X1, Y1 | AUX |
| L | H | X2, Y2 | PB |
| H | H | X3, Y3 | TX |

***2 : The truth value table of Expander IC (BU4094BCF / M-F10 COMPLEX ASSY IC5801).**

| Function Name | Port Kind | Active |
|---|---|---|
| OE | C-MOS | H |
| ACRY | C-MOS | H |
| SPRY | C-MOS | H |
| XMUTE | C-MOS | L |
| IND | C-MOS | H |
| HPPOW | C-MOS | (Not used) |
| WF1* | C-MOS | L |
| WF2* | C-MOS | L |

*****

| Woofer Level | WF1 | WF2 |
|---|---|---|
| HIGH | H | H |
| MID | H | L |
| LOW | L | H |

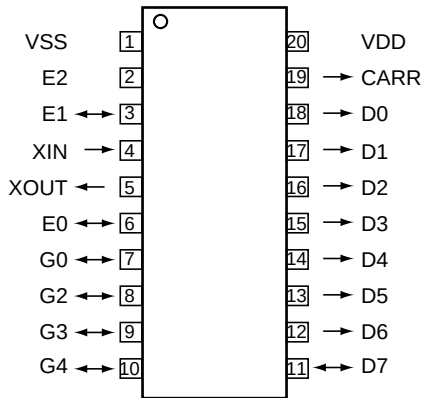
***3 : The truth value table of PLAY LED brightness.**

| Brightness | DISCLED | LEDDIMA | LEDDIMB |
|---|---|---|---|
| OFF | L | L | L |
| LOW | L | L | H |
| MID | L | H | L |
| HIGH | H | L | L |

## ■ PD5601A (DISP UNIT : IC5652)

**• 4 Bit Single Chip Microcomputer**

**● Pin Assignment**




**● Pin Function**

| NO. | PIN NAME | FUNCTION | I/O | PULL DOWN | ACT | at SLEEP | NOTE |
|---|---|---|---|---|---|---|---|
| 1 | VSS | GND | – | —— | – | ——— | |
| 2 | E2 | Trigger input for buzzer | I | Software | H | I | Pull down ON always |
| 3 | E1 | Buzzer output | O | Software | H | I | Pull down ON always |
| 4 | X IN | 3.84MHz Oscillation Connection | I | —— | – | ——— | |
| 5 | X OUT | 3.84MHz Oscillation Connection | O | —— | – | ——— | |
| 6 | E0 | buzzer ON/OFF input | I | Software | H | Input interception | Pull down OFF at SLEEP |
| 7 | G0 | KEY input 1 | I | Software | H | I | |
| 8 | G1 | KEY input 2 | I | Software | H | I | |
| 9 | G2 | KEY input 3 | I | Software | H | I | |
| 10 | G3 | KEY input 4 | I | Software | H | I | |
| 11 | D7 | Signal switch output | O | Software | H | I | |
| 12 | D6 | Remote control output without carrier | O | External | L | H output | |
| 13 | D5 | KEY output | O | —— | H | H output | |
| 14 | D4 | KEY output | O | —— | H | H output | |
| 15 | D3 | KEY output | O | —— | H | H output | |
| 16 | D2 | KEY output | O | —— | H | H output | |
| 17 | D1 | KEY output | O | —— | H | H output | |
| 18 | D0 | KEY output | O | —— | H | H output | |
| 19 | CARR | Remote control output with carrier | O | —— | H | L output | |
| 20 | VDD | 3V Power supply | – | —— | – | ——— | |

| KEY No. | KEY NAME | TRANSMISSION CODE |
|---|---|---|
| 1 | I◄◄ / – | A692 |
| 2 | VOLUMEUP | A60A |
| 3 | TUNER | A649 |
| 4 | ►►I / + | A691 |
| 5 | VOLUMEDN | A60B |
| 6 | CD | A644 |
| 7 | STOP | A690 |
| 8 | TIMER | A6CE |
| 9 | TAPEREC | A114 |
| 10 | MD REC | A6A2+AF66 |
| 11 | SET | A674 |
| 12 | DISPLAY | A69D |
| 13 | TAPE | A617 |
| 14 | AUX | A64C |
| 15 | POWER | A61C |
| 16 | MENU | A672 |
| 17 | SOUND | A6DA |
| 18 | MD | A6A2+AF6D |
| 19 | CDR | A6A0+AF35 |
| 20 | CANCEL | A673 |
| 21 | ◄◄ | A694 |
| 22 | ►► | A693 |
| 23 | CDR DOOR | A6A0+AF6F |
| 24 | CD DOOR | A6A0+AF6E |

| | G0 | G1 | G2 | G3 |
|---|---|---|---|---|
| D0 | 1 | 2 | 3 | 19 |
| DI | 4 | 5 | 6 | 20 |
| D2 | 7 | 8 | 9 | 21 |
| D3 | 10 | 11 | 12 | 22 |
| D4 | 13 | 14 | 15 | 23 |
| D5 | 16 | 17 | 18 | 24 |

## ● OPERATION EXPLANATION

It returns for the key input or the trigger input for the buzzer as SLEEP mode at time usually.

For "L" buzzer ON/OFF input.

Terminal CARR : The remote control code which corresponds to the pushed key is transmitted.
Carrier 40KHz, 1/3 Duty, Frame cycle 26ms.

Terminal E1 : If "H" pulse of 50-200ms is input two times between 0.5-1.5S in the terminal E2, the buzzer is output.
The buzzer is output if "H" pulse of 50-200ms is input two times between 0.5-1.5S in the terminal E2.
· Frequency of buzzer : 3KHz.
· How to sound the buzzer is as follows.
100ms sounding 100ms rest 100ms is sounded.
500ms rest, and 100ms repeated sounding, 100ms rest, and 100ms is sounded and it ends (Enter SLEEP).
*The buzzer is not output for 50ms or less and 200ms or more.
*The buzzer output is not done, except when the interval of the pulse of two times is 0.5-1.5S.
(Enter SLEEP when 1.5S is passed from the pulse of the first time.)
*This terminal is checked if there is no key input when returning from SLEEP.
(This terminal is not checked, except when returning for the key input.)
*When there is a key input when the width of the pulse and the interval are measured, the mode is made a key input and the measurement of the pulse is discontinued.

Terminal D6 : "H" Fix.
Terminal D7 : "L" Fix.

For "H" buzzer ON/OFF input.

Terminal CARR : "L" Fix.
Terminal E1 : "L" Fix.

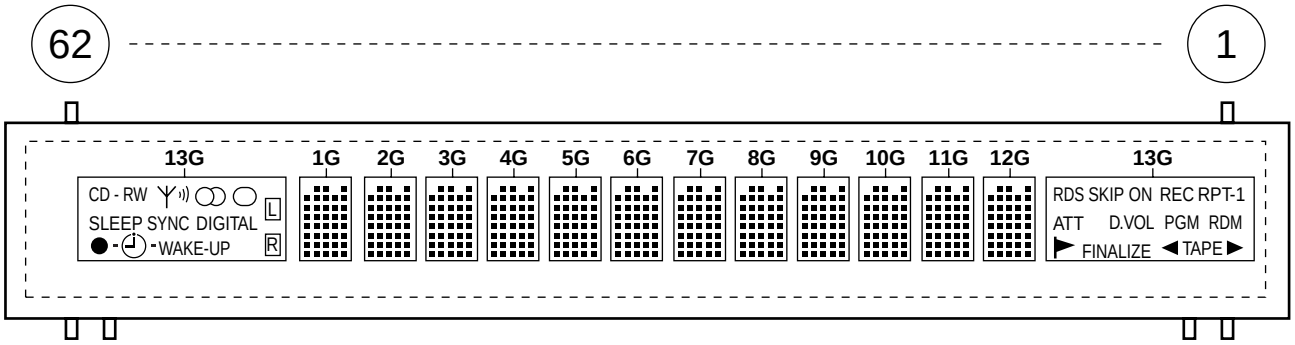
Terminal D6 : The remote control code which corresponds to the pushed key is transmitted.
There is no carrier.

Terminal D7 : Only when the remote control code is transmitted, "H" is output.
*It is made "H" before the remote control code is transmitted. After 10ms, it is made "L" after the key is turned off, and the last remote control code is transmitted.

## 7.2.2 DISPLAY

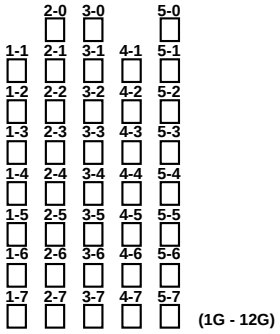
### ■ AAV7077 (DISP UNIT : V5651)

**• FL DISPLAY**




**● Anode Connection**

| | 13G | 12G - 1G |
|---|---|---|
| P1 | RDS | 1-1 |
| P2 | SKIP | 2-1 |
| P3 | ON | 3-1 |
| P4 | REC | 4-1 |
| P5 | RPT | 5-1 |
| P6 | -1 | 1-2 |
| P7 | ATT | 2-2 |
| P8 | D.VOL | 3-2 |
| P9 | PGM | 4-2 |
| P10 | RDM | 5-2 |
| P11 | ▶ | 1-3 |
| P12 | FINALIZE | 2-3 |
| P13 | ◀ | 3-3 |
| P14 | TAPE | 4-3 |
| P15 | ▶ | 5-3 |
| P16 | – | 1-4 |
| P17 | – | 2-4 |
| P18 | – | 3-4 |
| P19 | – | 4-4 |
| P20 | – | 5-4 |
| P21 | – | 1-5 |
| P22 | – | 2-5 |
| P23 | WAKE-UP | 3-5 |
| P24 | - ◴ - | 4-5 |
| P25 | ● | 5-5 |
| P26 | L R | 1-6 |
| P27 | DIGITAL | 2-6 |
| P28 | SYNC | 3-6 |
| P29 | SLEEP | 4-6 |
| P30 | ⬭ | 5-6 |
| P31 | ⬭⬭ | 1-7 |
| P32 | Y)) | 2-7 |
| P33 | W | 3-7 |
| P34 | - R | 4-7 |
| P35 | CD | 5-7 |
| P36 | – | 2-0 |
| P37 | – | 3-0 |
| P38 | – | 5-0 |




**● Pin Connection**

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection | F1 | F1 | NP | NP | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 | P10 | P11 | P12 | P13 | P14 | P15 | P16 | P17 | P18 | P19 | P20 | P21 | P22 | P23 | P24 | P25 | P26 | P27 |
| Pin No. | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 |
| Connection | P28 | P29 | P30 | P31 | P32 | P33 | P34 | P35 | P36 | P37 | P38 | 13G | 12G | 11G | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G | 1G | NX | NX | NX | NP | NP | F2 | F2 |

F1, F2 : Filament NP : No Pin NC : No Connection NX : No Extend Pin DL : Datum Line 1G~13G : Grid

# 8. PANEL FACILITIES AND SPECIFICATIONS

## 8.1 PANEL FACILITIES

### CD tuner

1 **Top cover** – Remove to access the antenna terminals and auxiliary inputs

2 **STANDBY/ON** – Press to switch the system on or into standby

3 **VOL –** – Use to reduce the volume

4 **VOL +** – Use to increase the volume

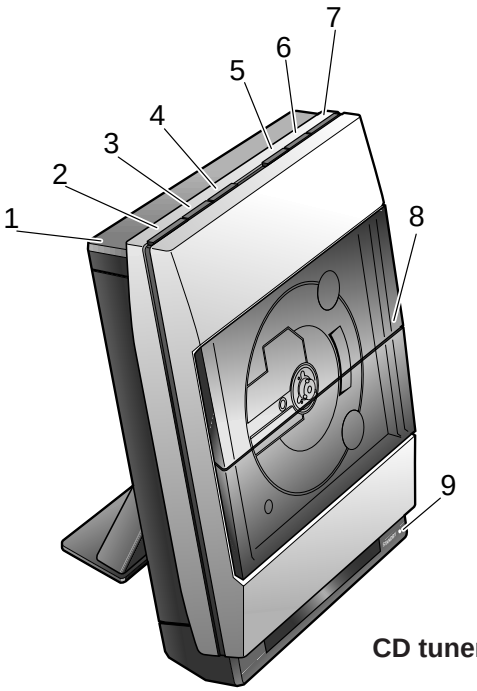
5 ■ – Press to stop the currently playing CD

6 ►/II – Press to start CD playback, or pause a disc that's already playing (press again to restart)

7 **OPEN/CLOSE** – Press to open/close the disc compartment

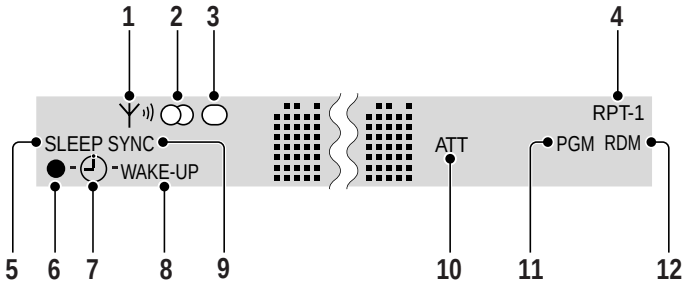
8 **Disc compartment** – The disc compartment automatically opens when you move your hand near

9 **Standby indicator** – Lights when the system is in standby and lights green when the system is in timer-standby mode.




**CD tuner**

### Display




1 **Tuning indicator** – Lights when the tuner is tuned to a broadcast.

2 **FM stereo indicator** – Lights when you're listening to an FM broadcast in stereo.

3 **FM mono indicator** – Lights when you're listening to an FM broadcast in mono.

4 **RPT[-1]** – Indicates the repeat mode (RPT for repeat disc; RPT-1 for repeat track).

5 **SLEEP**– Lights when the sleep timer has been set.

6 **Record timer** – Lights when the record timer has been set for the tape deck, MD recorder or CD-Recorder.

7 **Timer set indicator** – Indicates that the wake-up and/or the record timer have been set.

8 **WAKE UP** – Lights when the wake up timer has been set.

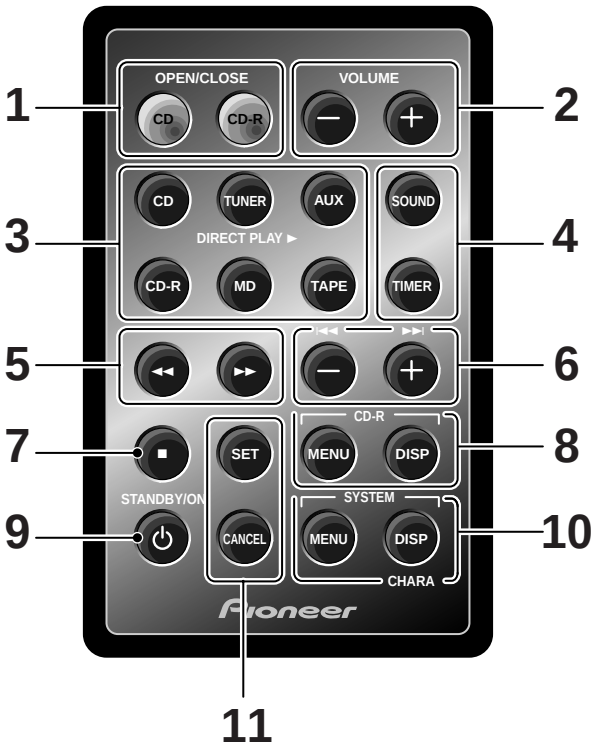
9 **SYNC** – Lights during automatic sync recording.

10 **ATT** – Lights when the auxiliary input signal is being attenuated (reduced in level).

11 **PGM** – Lights when a playlist has been programmed.

12 **RDM** – Lights during random track playback.

## Remote control




1 **OPEN/CLOSE buttons** – Press to open/close the disc compartment of the CD player and optional CD-Recorder.

2 **VOLUME buttons** – Use to adjust the volume.

3 **Direct Play buttons** – Press to switch to CD, tuner, tape, MD, CD-R or AUX (auxilliary). If the system is in standby, the power is also switched on. For CD, tape, MD and CD-R, playback will start if there's a CD/tape/MD loaded. This system can't control a component connected to the auxiliary inputs.

4 **SOUND** – Press to select bass, treble, balance or sub-woofer level (use the + and – buttons to adjust the level).

**TIMER** – Press to access the timer menu for setting the wake-up, sleep and record timers.

5 **◄◄ ►►** – Press to scan backwards/forwards on the CD/tape/MD currently playing.

6 **– + (I◄◄ ►►I)** – Use to switch between menu options; adjust the sound; change the preset station number when listening to the tuner; or skip tracks on the currently playing CD/tape/MD.

7 **■** – Press to stop the currently playing CD/tape/MD.

8 **CD-R control**

**MENU** – Press to access the menu for the optional CD-Recorder.

**DISP** – Press to change the disc information shown in the optional CD-R's display.

9 **⏻ (STANDBY/ON)** – Press to switch the system on or into standby.

10 **SYSTEM control**

**MENU** – Press to access the menu.

**DISP/CHARA** – Press to change the displayed information (this varies according to the current function).

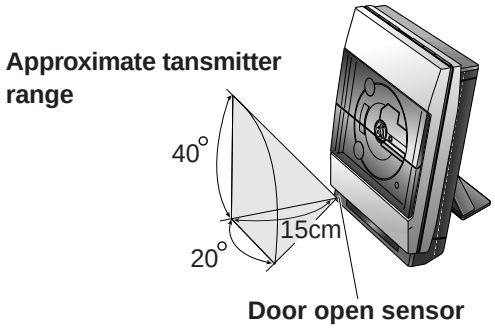
11 **SET** – Press to make a setting when using the menu system.

**CANCEL** – Press to escape from within a menu.

## About the automatic door open sensor

The automatic opening of the disc compartment works using an infrared sensor. It may not work reliably if:

- the sensor is exposed to direct sunlight
- the room is lit using fluorescent lights
- the unit is on a dark-colored surface
- the unit is placed adjacent to a wall or other surface




On its default setting, the door open sensor may open the disc compartment even if a CD is playing. You can change this so that it will only work if the CD player is stopped, or you can switch it off altogether.

## 8.2 SPECIFICATIONS

### Stereo CD Tuner: XC-F10

**FM Tuner Section**

Frequency Range ..... 87.5 - 108MHz
Antenna ..... 75 Ω, unbalanced

**AM Tuner Section**

Frequency Range530 kHz - 1,700 kHz (10 kHz step)
531 kHz - 1,602 kHz(9 kHz step)
Antenna ..... Loop antenna

**Compact Disc Player Section**

Type ..... Compact disc digital audio system
Usable discs ..... Compact discs
Channels ..... 2 (stereo)
Frequency Response ..... 4 Hz–20 kHz
Signal-to-Noise Ratio ..... 110 dB (EIAJ)
Wow and Flutter ..... Limit of measurement (0.001%) or less (EIAJ)
Dimensions ..... 170 (W) × 268 (H) × 66 (D) mm
(6 11/16(W) x 10 9/16(H) x 2 5/8(D) in.)
(without stands and door closed)
Weight ..... 1.5 kg (3 lb. 5 oz.)

**Accessories**

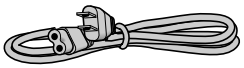
Remote control unit ..... 1
Stand A ..... 1
Stand B ..... 1
Paper pattern ..... 1
System cable ..... 1
FM wire antenna ..... 1
AM loop antenna ..... 1
Lithium battery (CR2025) ..... 1
AC power cord ..... 1
Operating instructions ..... 1
Warranty card ..... 1

**NOTE:** Specifications and design subject to possible modification without notice, due to improvements.

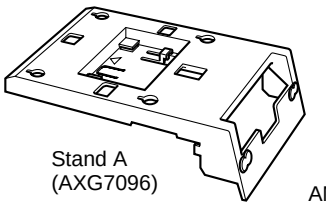
**ACCESSORIES**

Remote control unit
(AXD7271)

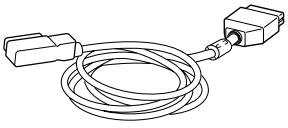
Lithium battery (CR2025)



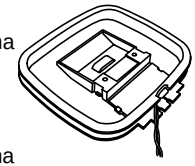
AC power cord
(ADG7022)



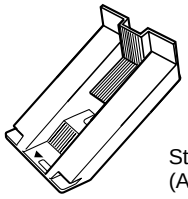
Stand A
(AXG7096)



System cable (ADE7057)



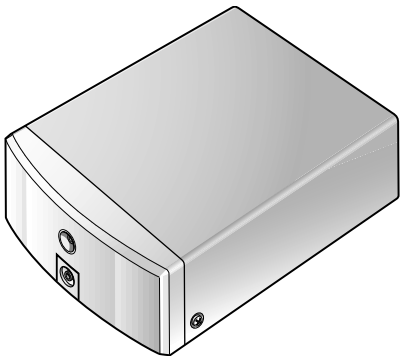
AM loop antenna
(ATB7009)



Stand B
(AXG7097)

FM wire antenna
(ADH7004)

# Service Manual



ORDER NO.
**RRV2349**

## STEREO POWER AMPLIFIER

# M-NS1

### THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

| Type | Model | Power Requirement | The voltage can be converted by the following method. |
|---|---|---|---|
| | M-NS1 | | |
| DBDXJ | ○ | AC110–127V/220–230V/240V | With the voltage selector |
| DLXJ/NC | ○ | AC110–120V/220–230V/240V | With the voltage selector |
| YPWXJ | ○ | AC240V | ———— |

- **This product is a system(s) component.**
  **This product does not function properly independently ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.**
- **Please connect it to the STEREO CD TUNER XC-NS1 for adjustment and operation inspection.**

| Component | Model | Service manual | Remarks |
|---|---|---|---|
| STEREO CD TUNER | XC-NS1 | RRV2348 (RRV2341) | |
| STEREO POWER AMPLIFIER | M-NS1 | RRV2349 (RRV2321) | This manual. |
| SPEAKER SYSTEM | S-NS1-LRW | RRV2371 | Except YPWXJ type |
| MINIDISC RECORDER | MJ-NS1 | RRV2363 | |

● This service manual should be used together with the following manual(s).

| Model No. | Order No. | Remarks |
|---|---|---|
| M-F10/MYXJ | RRV2321 | |

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# 1. CONTRAST OF MISCELLANEOUS PARTS

*NOTES :*
- *Parts marked by " NSP " are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on the product are used for disassembly.*
- *Reference Nos. indicate the pages and Nos. in the service manual for the base model.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

*560 Ω → 56 × 10 [1] → 561 ..... RD1/4PU 5 6 1 J*
*47k Ω → 47 × 10 [3] → 473 ..... RD1/4PU 4 7 3 J*
*0.5 Ω → R50 ..... RN2H R 5 0 K*
*1 Ω → 1R0 ..... RS1P 1 R 0 K*

*Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).*

*5.62k Ω → 562 × 10 [1] → 5621 ..... RN1/4PC 5 6 2 1 F*

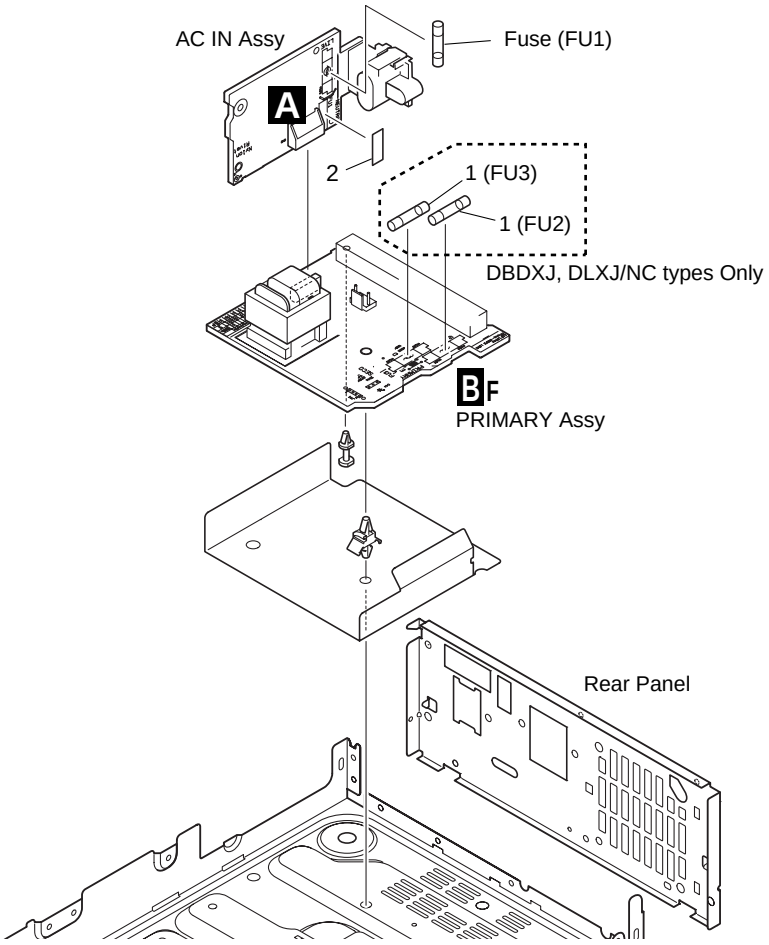
## ■ CONTRAST TABLE

M-NS1/DBDXJ, DLXJ/NC, YPWXJ and M-F10/MYXJ are constructed the same except for the following:

| Ref. No. | Mark | Symbol and Description | Part No. | | | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | M-F10 MYXJ | M-NS1 DBDXJ | M-NS1 DLXJ/NC | M-NS1 YPWXJ | |
| | | **PCB ASSEMBLIES** | | | | | |
| | NSP | AMP MAIN Assy | AWM7499 | AWM7525 | AWM7525 | AWM7526 | |
| P6–2 | | └ PRIMARY Assy | AWU7557 | AWU7611 | AWU7611 | AWU7612 | |
| | | **PACKING** | | | | | |
| P4–1 | | Paper Pattern | AAX7807 | Not used | Not used | AAX7807 | |
| P4–2 | | System Cable (20P) | ADE7057 | Not used | Not used | ADE7057 | |
| P4–3 | ⚠ | AC Power Cord | ADG1154 | Not used | Not used | ADG1160 | |
| P4–5 | | FM Wire Antenna | ADH7005 | Not used | Not used | ADH7004 | |
| P4–6 | | Operating Instructions (Dutch/Swedish/Spanish/Portuguese) | ARC7301 | Not used | Not used | Not used | |
| P4–7 | | Operating Instructions (English/French/German/Italian) | ARE7264 | Not used | Not used | Not used | |
| P4–7 | | Operating Instructions (English) | Not used | Not used | Not used | ARB7227 | |
| P4–8 | ⚠ | Errata | ARX7037 | Not used | Not used | ARX7037 | |
| P4–9 | NSP | Warranty Card | ARY7022 | Not used | Not used | ARY7027 | |
| P4–10 | | AM Loop Antenna | ATB7009 | Not used | Not used | ATB7009 | |
| P4–11 | | Ferrite Core | ATX7007 | Not used | Not used | ATX7007 | |
| P4–12 | | Remote Control Unit | AXD7271 | Not used | Not used | AXD7271 | |
| P4–14 | | Stand A | AXG7096 | Not used | Not used | AXG7096 | |
| P4–15 | | Stand B | AXG7097 | Not used | Not used | AXG7097 | |
| P4–16 | ⚠NSP | Lithium Battery (CR2025) | VEM1009 | Not used | Not used | VEM1009 | |
| P4–17 | | Vinyl Bag (115 × 270 × 0.05) | Z21–013 | Not used | Not used | Z21–013 | |
| P4–18 | NSP | Polyethylene Bag (0.03 × 230 × 340) | Z21–038 | Not used | Not used | Z21–038 | |
| P4–21 | | Spacer A | AHB7037 | Not used | Not used | AHB7037 | |
| P4–22 | | Packing Case | AHD7941 | AHD7948 | AHD7907 | AHD7908 | |
| | | **EXTERIOR** | | | | | |
| P6–7 | ⚠ | Power Transformer (T1) | ATS7278 | ATS7282 | ATS7282 | ATS7282 | |
| P6–8 | ⚠ | Fuse (FU1) | REK1025 (T2AL250V) | REK1028 (T4AL250V) | REK1028 (T4AL250V) | REK1025 (T2AL250V) | |
| | ⚠ | Fuse (T2AL250V, FU2, FU3) | Not used | REK1025 | REK1025 | Not used | No. 1 |
| P6–10 | | Rear Panel | ANC7935 | ANC7936 | ANC7968 | ANC7969 | |
| P6–28 | NSP | Label | ARW7101 | Not used | Not used | Not used | |
| | | Label | Not used | ARW7104 | ARW7105 | ARW7106 | |
| P6–29 | | Caution Label | ARW7112 | ARW7114 | ARW7114 | ARW7114 | |
| P6–36 | NSP | Fuse Card | Not used | AAX7099 | AAX7099 | Not used | No.2 |

Notes: The numbers in the remarks column correspond to the numbers on the " EXPLODED VIEWS ".

## ■ EXPLODED VIEWS




## ■ CONTRAST OF PCB ASSEMBLIES

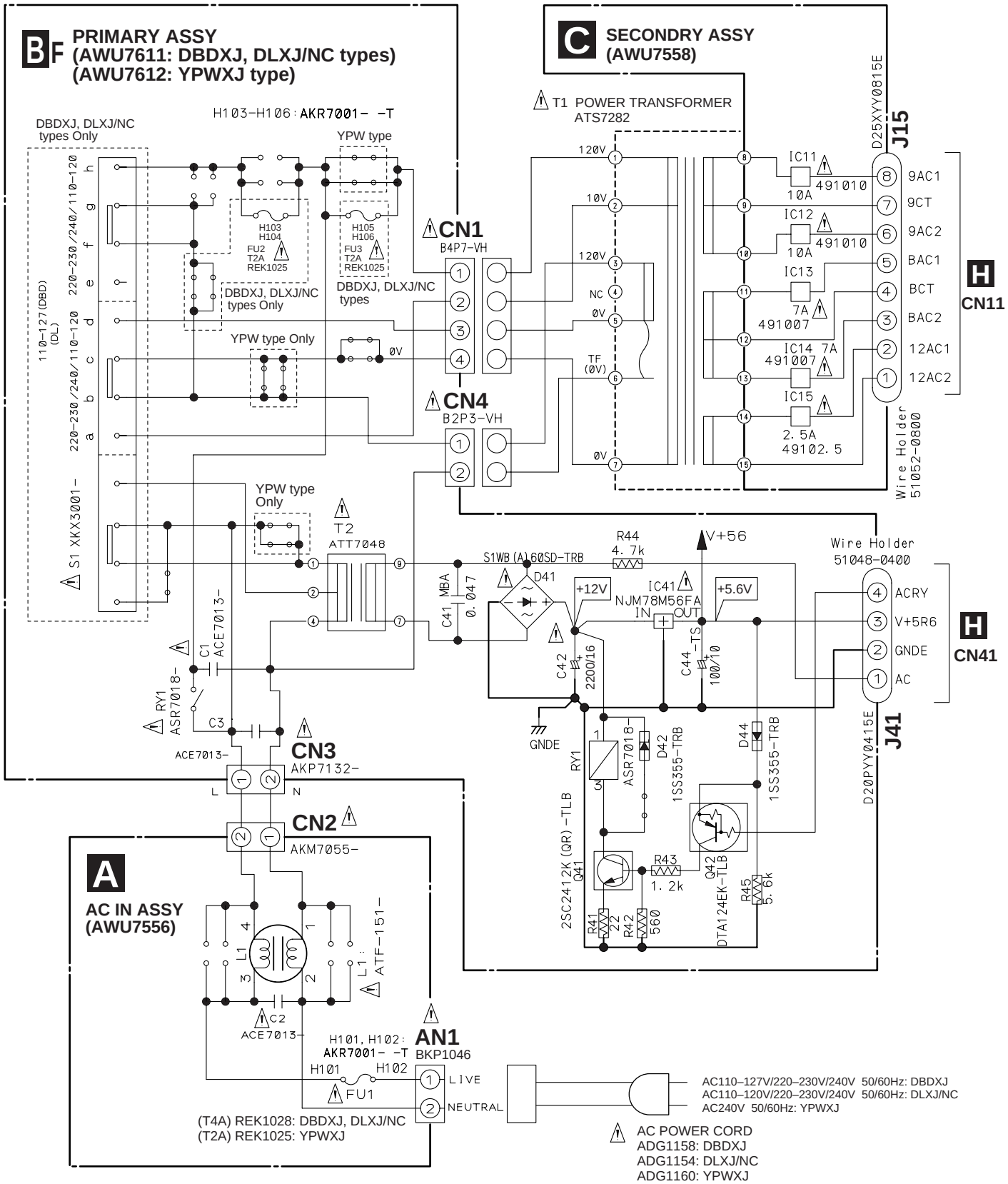
### BF PRIMARY Assy

AWU7611, AWU7612 and AWU7557 are constructed the same except for the following:

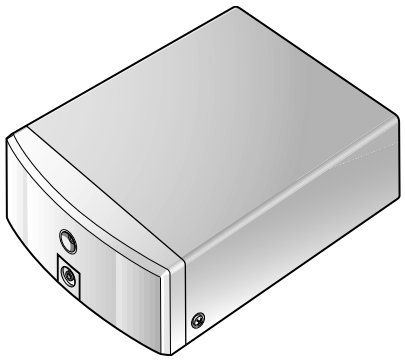
| Mark | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|
| | | AWU7557 | AWU7611 | AWU7612 | |
| ⚠ | S1 | Not used | XKX3001 | Not used | ∗1 |
| ⚠ | T2 | ATT7050 | ATT7048 | ATT7048 | |
| ⚠ | CN1 | Not used | B4P7–VH | B4P7–VH | ∗1 |

∗1: Refer to " SCHEMATIC DIAGRAM ".

## ■ SCHEMATIC DIAGRAM



# Service Manual



ORDER NO.
**RRV2321**

## STEREO POWER AMPLIFIER

# M-F10

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Type | Model | Power Requirement | Remarks |
|---|---|---|---|
| | M-F10 | | |
| MYXJ | ○ | AC220–230V | |
| NVXJ | ○ | AC230V | |
| KUXJ/CA | ○ | AC120V | |

- **This product is a system(s) component.**
  **This product does not function properly independently ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.**
- **Please connect it to the STEREO CD TUNER XC-F10, for adjustment and operation inspection.**

| Component | Model | Service manual | Remarks |
|---|---|---|---|
| STEREO CD TUNER | XC-F10 | RRV2319 (ZVYXJ type)<br>RRV2341 (ZUXJ/CA type) | |
| STEREO POWER AMPLIFIER | M-F10 | RRV2321 | This manual. |
| SPEAKER SYSTEM | S-F10-LRW | RRV2330 (XMD/EW type)<br>RRV2346 (XMD/UC type) | |
| STEREO CASSETTE DECK | CT-F10 | RRV2308 | |

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# 1. SAFETY INFORMATION

**This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.**
**Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.**

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

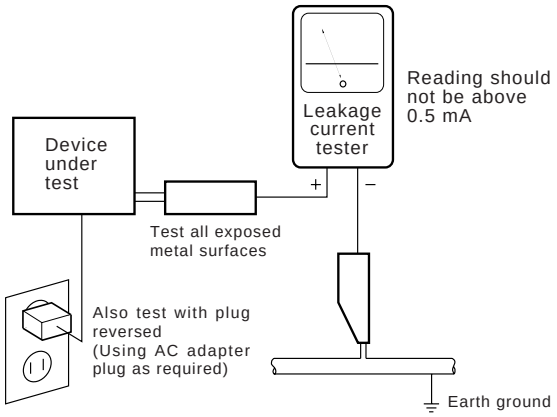
## (FOR USA MODEL ONLY)

### 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

**LEAKAGE CURRENT CHECK**

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Leakage current tester
Reading should not be above 0.5 mA
Device under test
+
–
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

### 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage , etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

## LITHIUM BATTERY NOTICE

**WARNING!**

Lithium batteries. Danger of explosion. Replacement must be done by qualified personnel and only by following the instructions given in the service manual.

**ADVARSEL!**

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

This warning is stated on the product or in the operating instructions.
When replacing the lithium batteries, follow the note below.
Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.
The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100 ˚C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

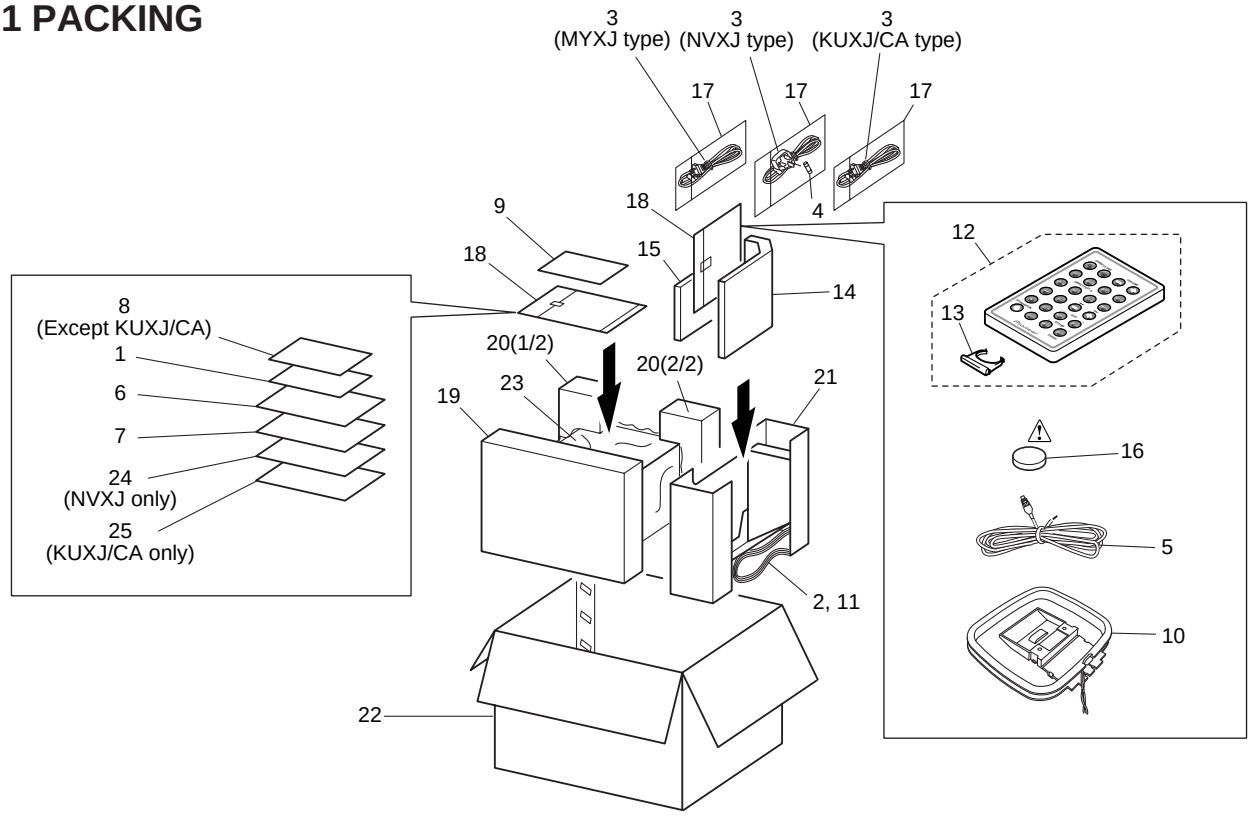
**Note**: The lithium battery installation position is shown in the exploded views.

Denne advarsel or angivet på produktet eller i brugsvejledningen.
Ved udskiftning af lithium batterierne følges nedenstående anveisning.
Batterierne må kun udskiftes med batterier af samme type og mærke.

# 2. EXPLODED VIEWS AND PARTS LIST

*NOTES :*
- *Parts marked by " NSP " are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screw adjacent to ▼ mark on the product are used for disassembly.*

## 2.1 PACKING



## (1) PACKING PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Paper Pattern | AAX7807 |
| | 2 | System Cable (20P) | ADE7057 |
| ⚠ | 3 | AC Power Cord | See Contrast table (2) |
| ⚠ | 4 | Fuse (T5A) | See Contrast table (2) |
| | 5 | FM Wire Antenna | See Contrast table (2) |
| | 6 | Operating Instructions | See Contrast table (2) |
| | 7 | Operating Instructions | See Contrast table (2) |
| | 8 | Errata | See Contrast table (2) |
| NSP | 9 | Warranty Card | See Contrast table (2) |
| | 10 | Loop Antenna | ATB7009 |
| | 11 | Ferrite Core | ATX7007 |
| | 12 | Remote control Unit | AXD7271 |
| | 13 | Battery Lid | AZN7834 |
| | 14 | Stand A | AXG7096 |
| | 15 | Stand B | AXG7097 |
| NSP ⚠ | 16 | Lithium Battery (CR2025) | VEM1009 |
| | 17 | Vinyl Bag (115 × 270 × 0.05) | Z21–013 |
| NSP | 18 | Polyethylene Bag (0.03 × 230 × 340) | Z21–038 |
| | 19 | Front Pad A | AHA7293 |
| | 20 | Rear Pad A | AHA7294 |
| | 21 | Spacer A | AHB7037 |
| | 22 | Packing Case | See Contrast table (2) |
| | 23 | Sheet | Z23–026 |
| | 24 | Operating Instructions | See Contrast table (2) |
| | 25 | Operating Instructions | See Contrast table (2) |

## (2) CONTRAST TABLE

MYXJ, NVXJ and KUXJ/CA are constructed the same except for the following:

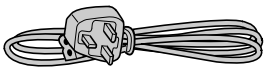
| Mark | No. | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|---|
| | | | MYXJ type | NVXJ type | KUXJ/CA type | |
| ⚠ | 3 | AC Power Cord | ADG1154 | ADG1156 | ADG7022 | |
| ⚠ | 4 | Fuse (T5A) | Not used | AEK7001 | Not used | |
| | 5 | FM Wire Antenna | ADH7005 | ADH7005 | ADH7004 | |
| | 6 | Operating Instructions (Dutch/Swedish/Spanish/Portuguese) | ARC7301 | Not used | Not used | |
| | 7 | Operating Instructions (English/French/German/Italian) | ARE7264 | Not used | Not used | |
| | 8 | Errata | ARX7037 | ARX7037 | Not used | |
| NSP | 9 | Warranty Card | ARY7022 | ARY7022 | ARY7045 | |
| | 22 | Packing Case | AHD7941 | AHD7942 | AHD7905 | |
| | 24 | Operating Instructions (English) | Not used | ARB7227 | Not used | |
| | 25 | Operating Instructions (English/French) | Not used | Not used | ARE7256 | |

### ACCESSORIES

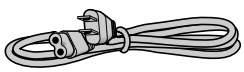
Remote control unit
(AXD7271)

⚠ Lithium battery
(CR2025)

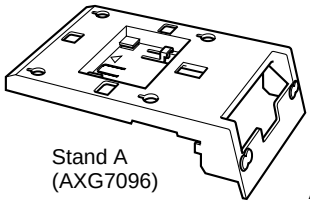
AC power cord
(ADG1154)
(For MYXJ type)



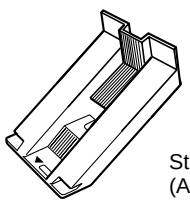
AC power cord
(ADG1156)
(For NVXJ type)



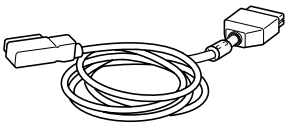
AC power cord
(ADG7022)
(For KUXJ/CA type)



Stand A
(AXG7096)

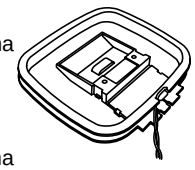


Stand B
(AXG7097)

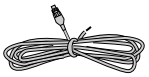


System cable (ADE7057)

AM loop antenna
(ATB7009)

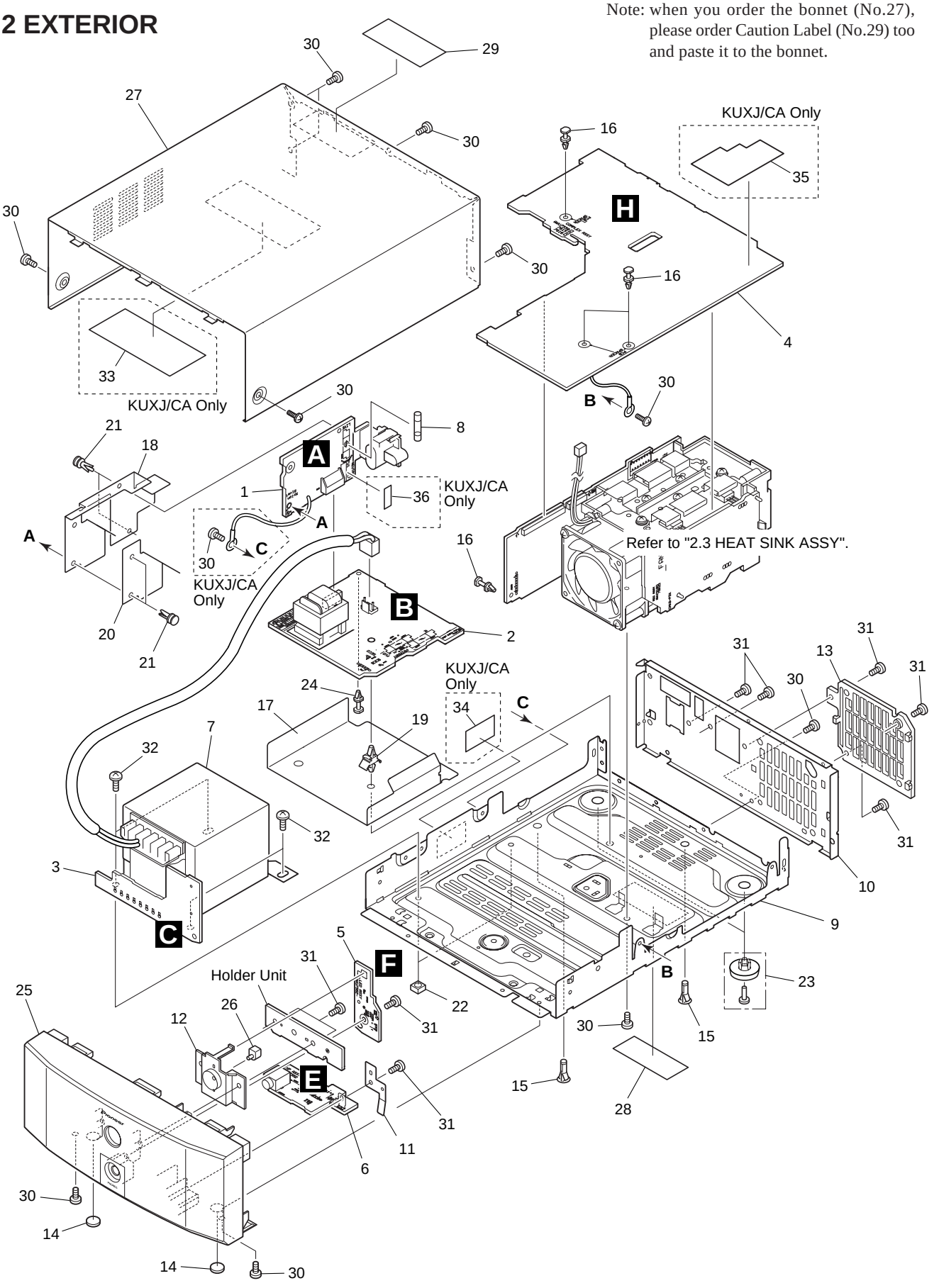


FM wire antenna
(ADH7005: For MYXJ and NVXJ types)
(ADH7004: For KUXJ/CA type)



## 2.2 EXTERIOR

Note: when you order the bonnet (No.27), please order Caution Label (No.29) too and paste it to the bonnet.



## (1) EXTERIOR SECTION PARTS LIST

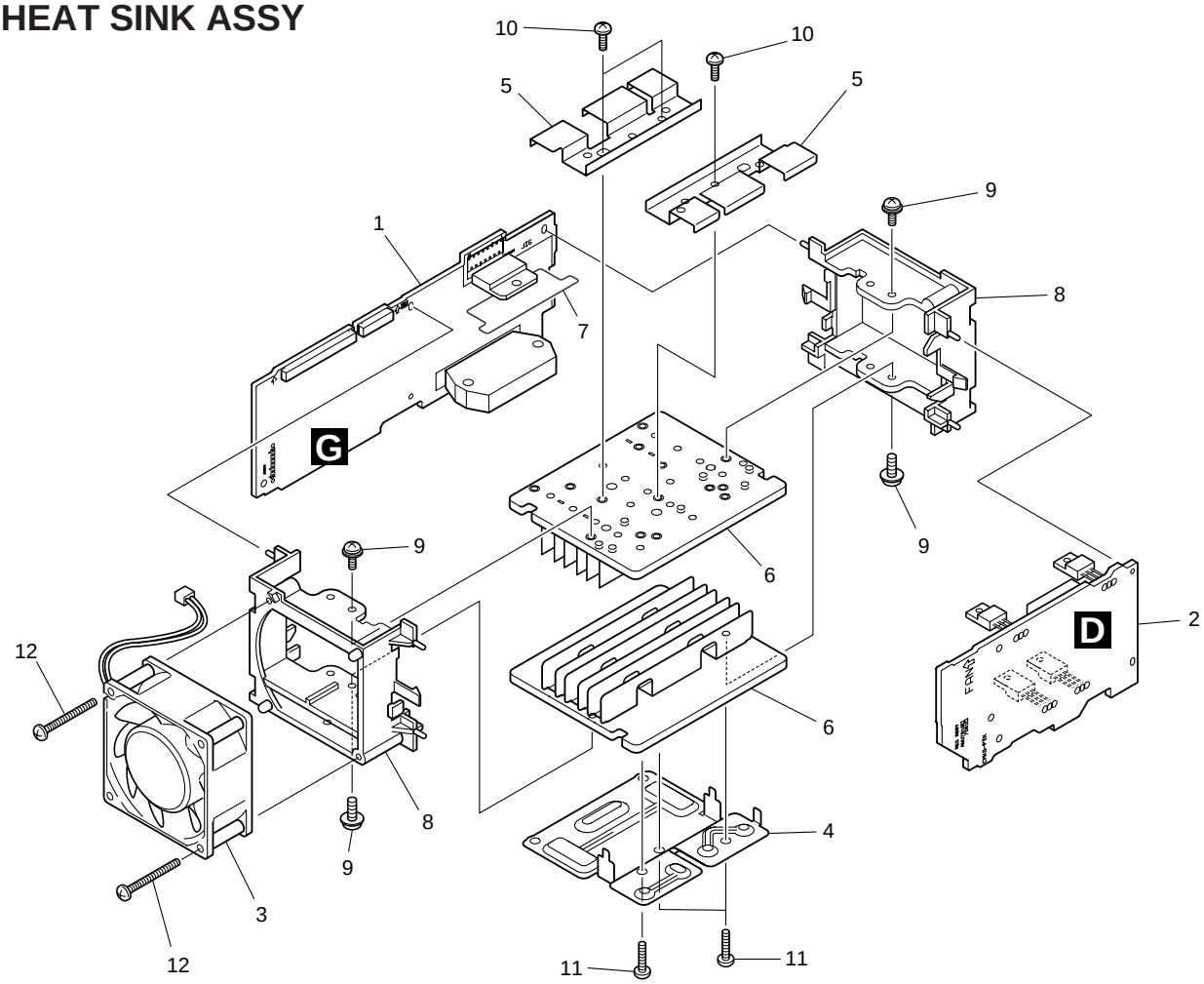
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | AC IN Assy | See Contrast table (2) |
| | 2 | PRIMARY Assy | See Contrast table (2) |
| | 3 | SECONDRY Assy | See Contrast table (2) |
| | 4 | COMPLEX Assy | See Contrast table (2) |
| | 5 | LED Assy | AWU7562 |
| | 6 | HP Assy | AWU7563 |
| ⚠ | 7 | Power Transformer (T1) | See Contrast table (2) |
| ⚠ | 8 | Fuse (FU1) | See Contrast table (2) |
| NSP | 9 | Chassis | ANA7110 |
| | 10 | Rear Panel | See Contrast table (2) |
| | 11 | Erath Plate | ANG7331 |
| | 12 | Lens Bracket | AAK7766 |
| | 13 | Rear Mold | AAX7803 |
| | 14 | Leg | AEB7090 |
| NSP | 15 | PCB Holder | AEC7057 |
| NSP | 16 | PCB Spacer (3×6) | AEC7156 |
| | 17 | Bottom Barrier | AEC7283 |
| | 18 | Side Barrier | AEC7285 |
| NSP | 19 | PCB Spacer | AEC7289 |
| | 20 | Sub Barrier | AEC7312 |
| | 21 | Nylon Rivet | AEC7315 |
| | 22 | Disc Guard | PNM1245 |
| | 23 | Foot (Rubber) | REC-434 |
| NSP | 24 | Card Spacer | REC1156 |
| | 25 | Front Panel | AMB7702 |
| | 26 | LED Lens | PNW2019 |
| | 27 | Bonnet | AZN7837 |
| NSP | 28 | Label | See Contrast table (2) |
| | 29 | Caution Label | See Contrast table (2) |
| | 30 | Screw | BBZ30P080FNI |
| | 31 | Screw | BPZ30P100FZK |
| | 32 | Screw | FBT40P060FCC |
| | 33 | 65 Label | See Contrast table (2) |
| NSP | 34 | Fuse Caution | See Contrast table (2) |
| NSP | 35 | Fuse Caution B | See Contrast table (2) |
| NSP | 36 | Fuse Card | See Contrast table (2) |

## (2) CONTRAST TABLE

MYXJ, NVXJ and KUXJ/CA are constructed the same except for the following:

| Mark | No. | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|---|
| | | | MYXJ type | NVXJ type | KUXJ/CA type | |
| | 1 | AC IN Assy | AWU7556 | AWU7556 | AWU7609 | |
| | 2 | PRIMARY Assy | AWU7557 | AWU7557 | AWU7658 | |
| | 3 | SECONDRY Assy | AWU7558 | AWU7558 | AWU7614 | |
| | 4 | COMPLEX Assy | AWU7559 | AWU7559 | AWU7616 | |
| ⚠ | 7 | Power Transformer (T1) | ATS7278 | ATS7278 | ATS7279 | |
| ⚠ | 8 | Fuse (FU1) | REK1025 (T2AL250V) | REK1025 (T2AL250V) | REK1066 (4A/125V) | |
| | 10 | Rear Panel | ANC7935 | ANC7935 | ANC7967 | |
| NSP | 28 | Label | ARW7101 | ARW7107 | ARW7103 | |
| | 29 | Caution Label | ARW7112 | ARW7112 | ARW7113 | |
| | 33 | 65 Label | Not used | Not used | ARW7050 | |
| NSP | 34 | Fuse Caution | Not used | Not used | AAX7817 | |
| NSP | 35 | Fuse Caution B | Not used | Not used | AAX7833 | |
| NSP | 36 | Caution Card | Not used | Not used | AAX2343 | |

## 2.3 HEAT SINK ASSY




### (1) HEAT SINK ASSY SECTION PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | AMP Assy | AWU7560 |
| | 2 | REG Assy | AWU7561 |
| | 3 | DC Fan Motor | AXM7014 |
| | 4 | Power Pac Holder | ANG7109 |
| | 5 | Heat Plate | ANG7328 |
| | 6 | Heat Sink | ANH7132 |
| | 7 | Mica Sheet | AEE7036 |
| | 8 | Fan Mold | AMR7321 |
| | 9 | Screw | ABA1021 |
| | 10 | Screw | BBZ30P080FNI |
| | 11 | Screw | BBZ30P160FMC |
| | 12 | Screw | BPZ30P350FZK |

### (2) CONTRAST TABLE

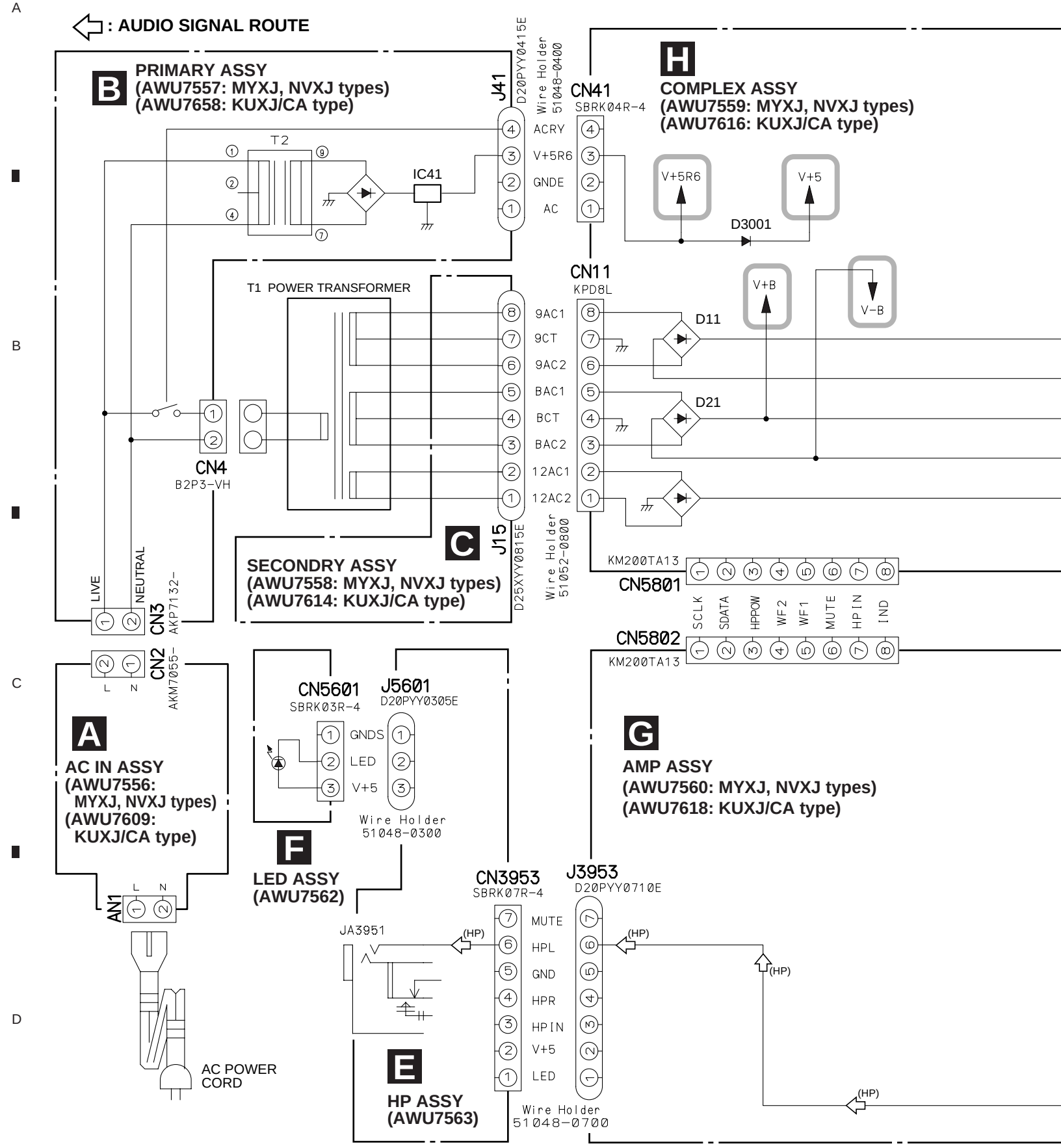
MYXJ, NVXJ and KUXJ/CA are constructed the same except for the following:

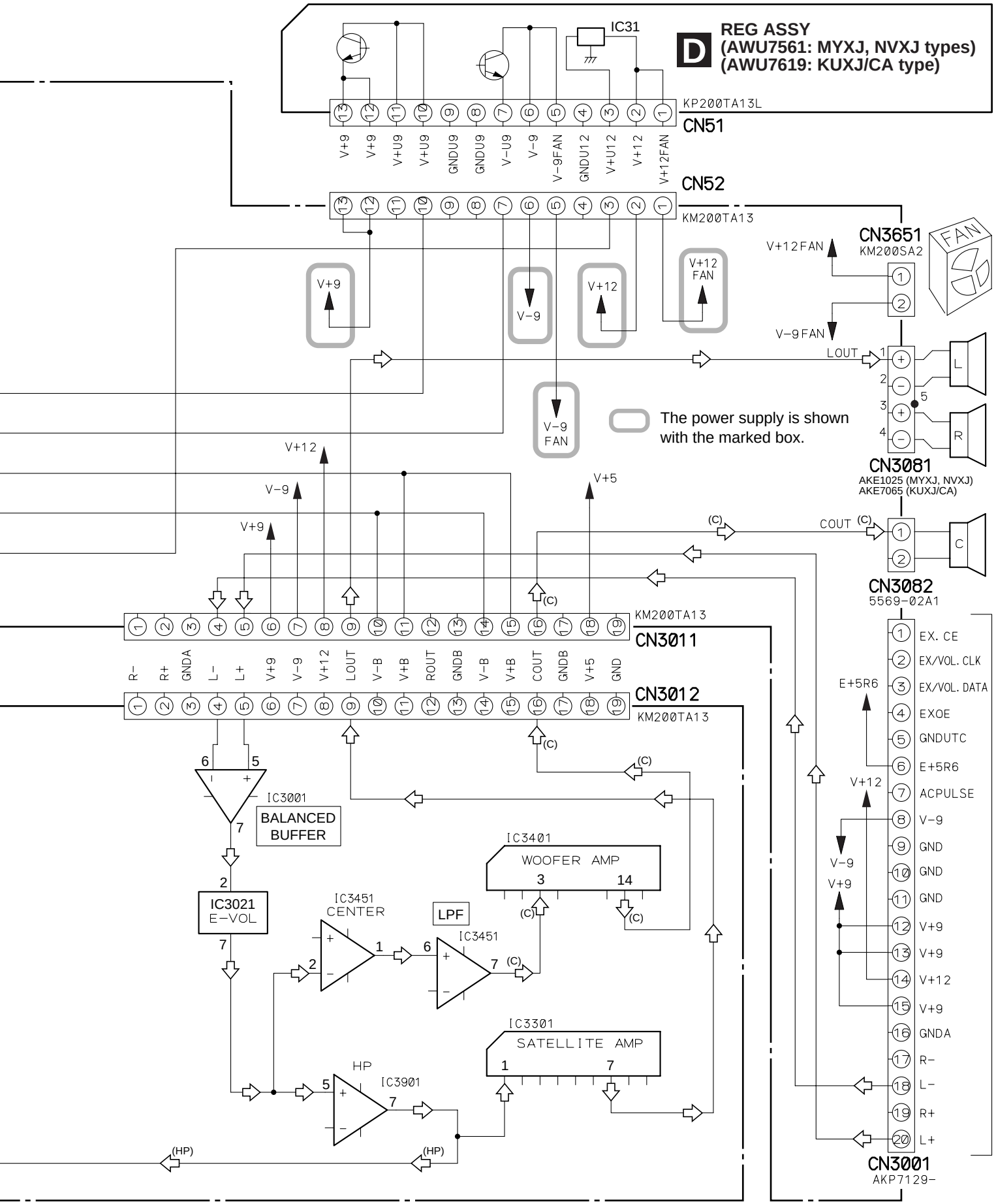
| Mark | No. | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|---|
| | | | MYXJ type | NVXJ type | KUXJ/CA type | |
| | 1 | AMP Assy | AWU7560 | AWU7560 | AWU7618 | |
| | 2 | REG Assy | AWU7561 | AWU7561 | AWU7619 | |

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

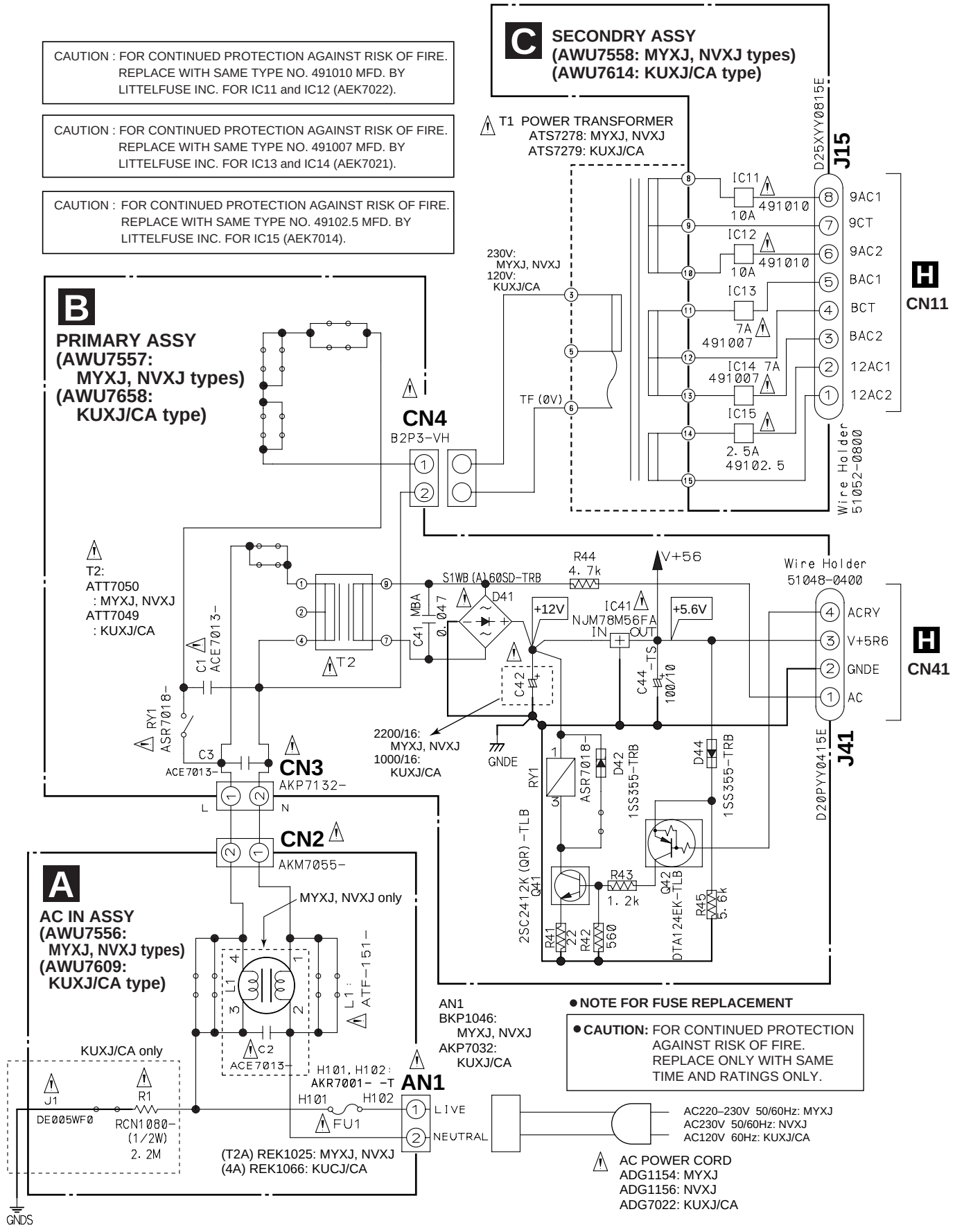
Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "PCB PARTS LIST".

## 3.1 BLOCK DIAGRAM and OVERALL CONNECTION DIAGRAM

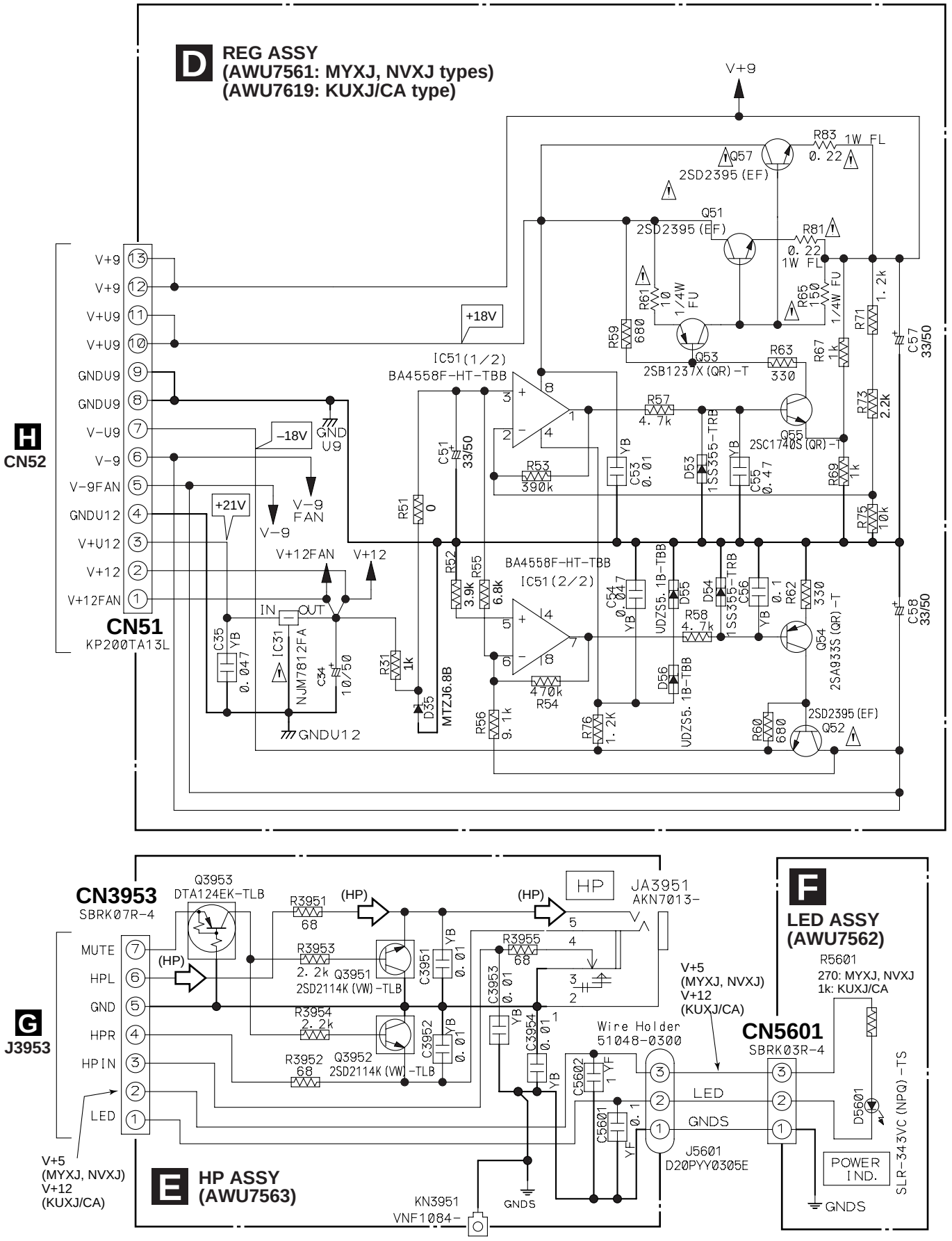



D
REG ASSY
(AWU7561: MYXJ, NVXJ types)
(AWU7619: KUXJ/CA type)
IC31
KP200TA13L
CN51
V+9
V+9
V+U9
V+U9
GNDU9
GNDU9
V-U9
V-9
V-9FAN
GNDU12
V+U12
V+12
V+12FAN
CN52
KM200TA13
CN3651
KM200SA2
FAN
V+12FAN
V-9FAN
V+9
V-9
V+12
V+12 FAN
V-9 FAN
LOUT
L
R
CN3081
AKE1025 (MYXJ, NVXJ)
AKE7065 (KUXJ/CA)
The power supply is shown with the marked box.
V+12
V-9
V+9
V+5
(C)
COUT
C
CN3082
5569-02A1
KM200TA13
CN3011
R-
R+
GNDA
L-
L+
V+9
V-9
V+12
LOUT
V-B
V+B
ROUT
GNDB
V-B
V+B
COUT
GNDB
V+5
GND
CN3012
KM200TA13
IC3001
BALANCED BUFFER
IC3021
E-VOL
IC3401
WOOFER AMP
IC3451
CENTER
LPF
IC3451
IC3301
SATELLITE AMP
HP
IC3901
(HP)
EX. CE
EX/VOL. CLK
EX/VOL. DATA
EXOE
GNDUTC
E+5R6
ACPULSE
V-9
GND
GND
GND
V+9
V+9
V+12
V+9
GNDA
R-
L-
R+
L+
E+5R6
V+12
V-9
V+9
CN3001
AKP7129-
To STEREO CD TUNER XC-F10

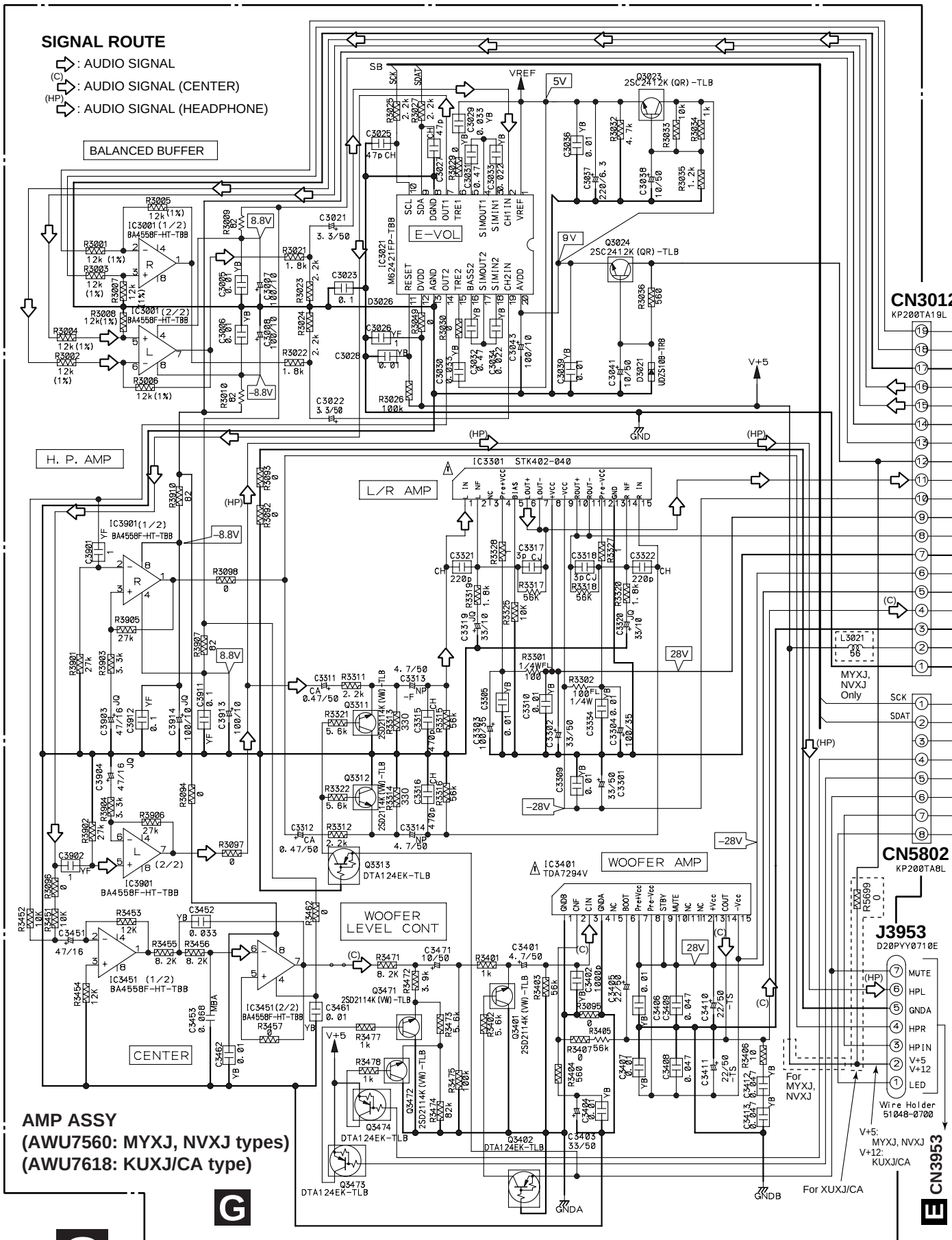
## 3.2 AC IN, PRIMARY and SECONDRY ASSYS

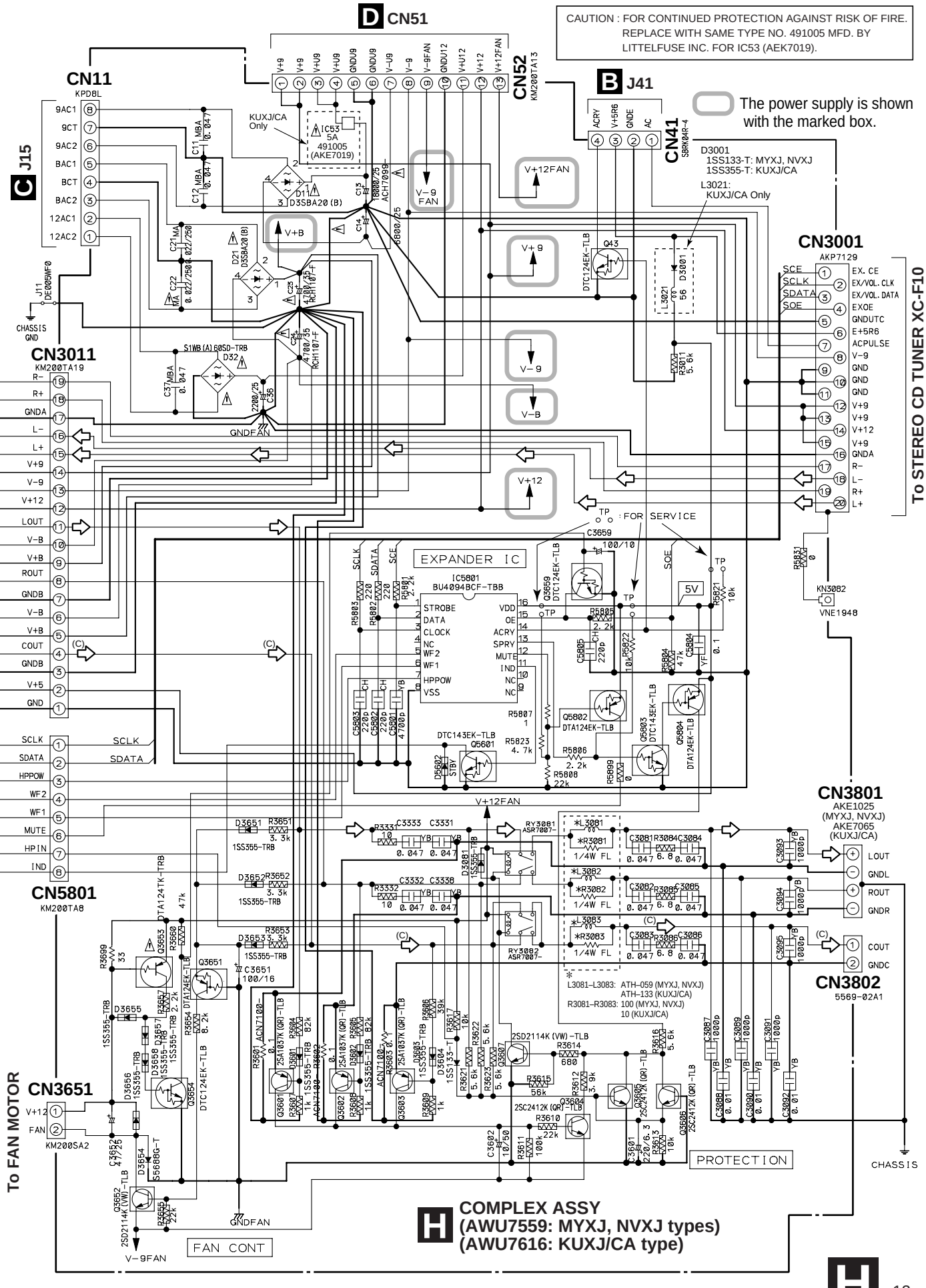


## 3.3 REG, HP and LED ASSYS



## 3.4 AMP and COMPLEX ASSYS




CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE NO. 491005 MFD. BY LITTELFUSE INC. FOR IC53 (AEK7019).
The power supply is shown with the marked box.
D CN51
CN52 KM200TA13
B J41
CN41 SBRK04R-4
C J15
CN11 KPD8L
CN3001 AKP7129
To STEREO CD TUNER XC-F10
CN3011 KM200TA19
CN5801 KM200TA8
CN3651 KM200SA2
To FAN MOTOR
CN3801 AKE1025 (MYXJ, NVXJ) AKE7065 (KUXJ/CA)
CN3802 5569-02A1
KUXJ/CA Only
IC53 5A 491005 (AKE7019)
D3001 1SS133-T: MYXJ, NVXJ 1SS355-T: KUXJ/CA
L3021: KUXJ/CA Only
EXPANDER IC
IC5801 BU4094BCF-TBB
: FOR SERVICE
L3081–L3083: ATH–059 (MYXJ, NVXJ) ATH–133 (KUXJ/CA)
R3081–R3083: 100 (MYXJ, NVXJ) 10 (KUXJ/CA)
PROTECTION
FAN CONT
CHASSIS
COMPLEX ASSY
(AWU7559: MYXJ, NVXJ types)
(AWU7616: KUXJ/CA type)

# 4. PCB CONNECTION DIAGRAM

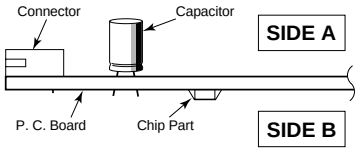
**NOTE FOR PCB DIAGRAMS:**

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

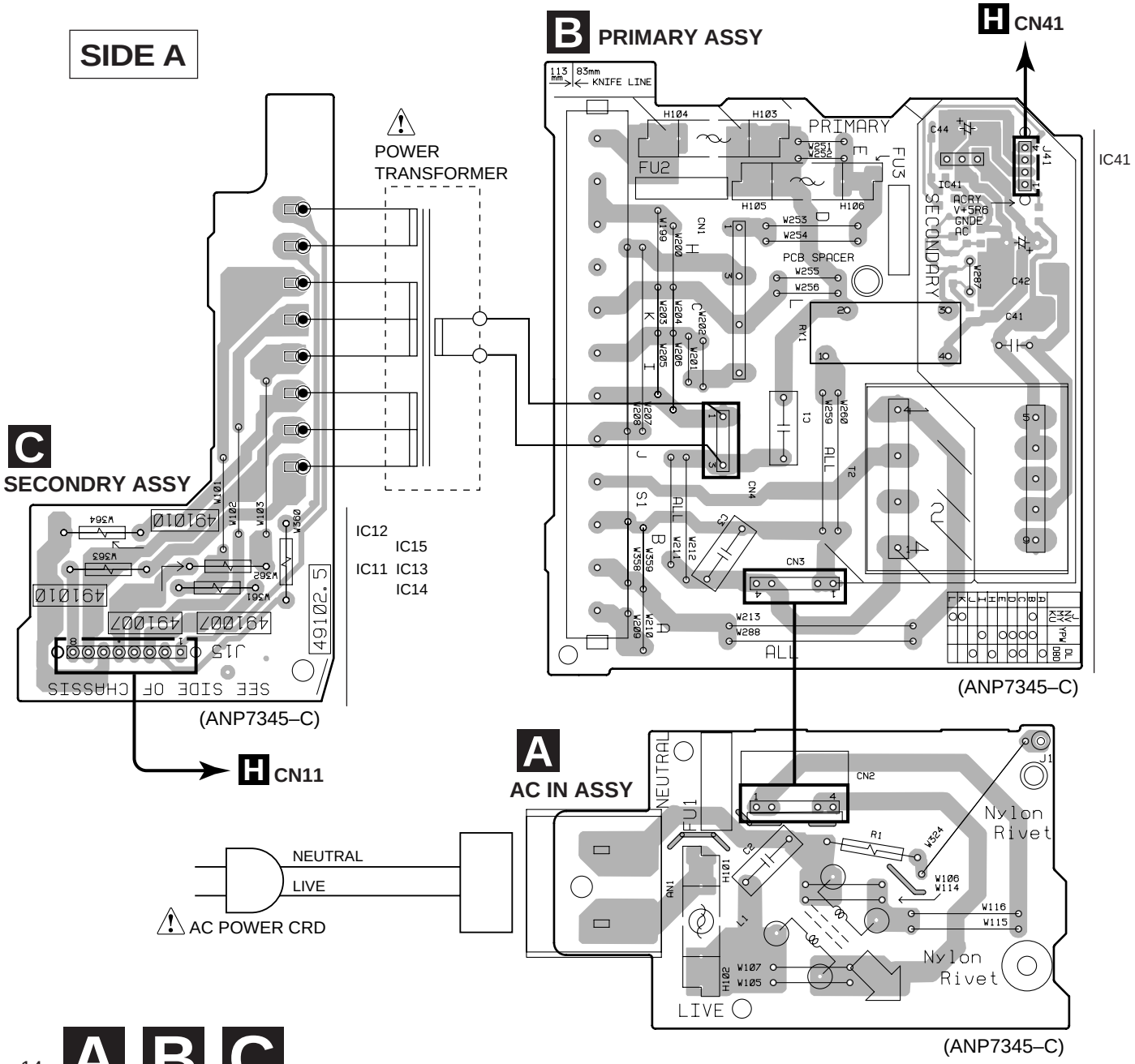
| Symbol in PCB Diagrams | Symbol in Schematic Diagrams | Part Name |
|---|---|---|
| B C E | B C E B C E | Transistor |
| B C E | B C E B C E | Transistor with resistor |
| D G S | D G S D G S | Field effect transistor |

| Symbol in PCB Diagrams | Symbol in Schematic Diagrams | Part Name |
|---|---|---|
| | | Resistor array |
| | | 3-terminal regulator |

3. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. Viewpoint of PCB diagrams

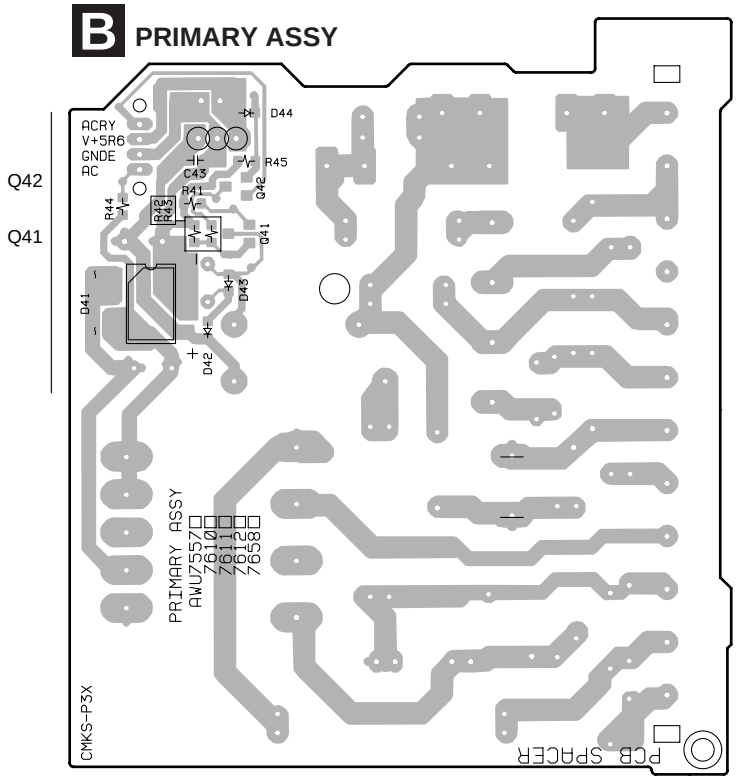



## 4.1 AC IN, PRIMARY and SECONDRY ASSYS



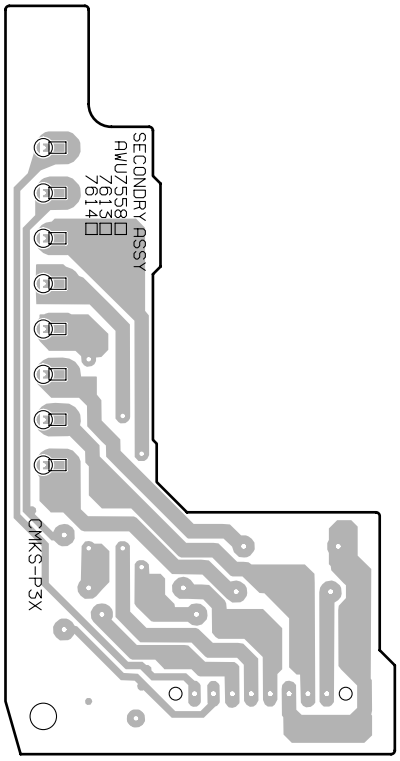
**SIDE B**

**B PRIMARY ASSY**



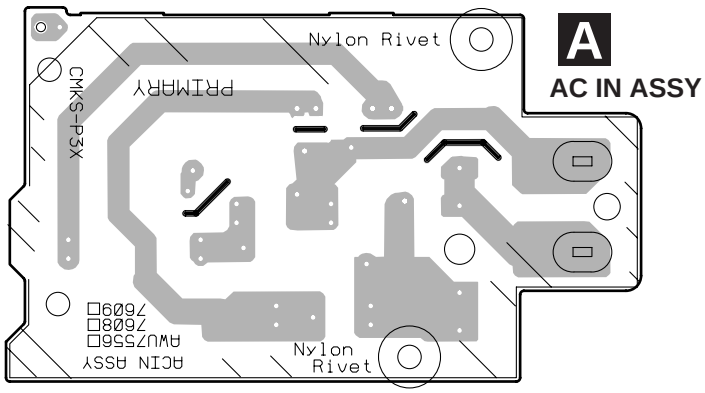

(ANP7345–C)

**C SECONDRY ASSY**



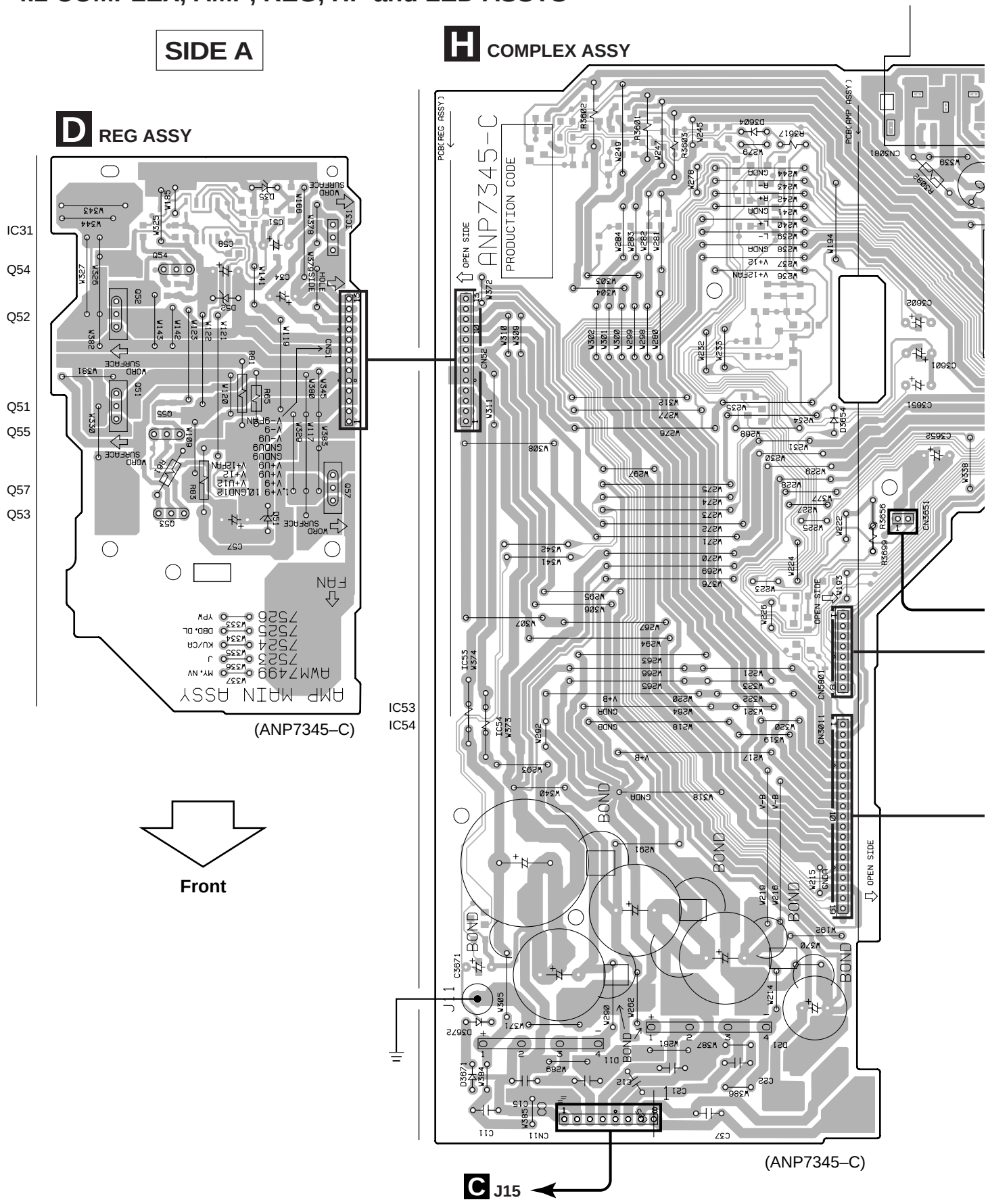

(ANP7345–C)

**A AC IN ASSY**

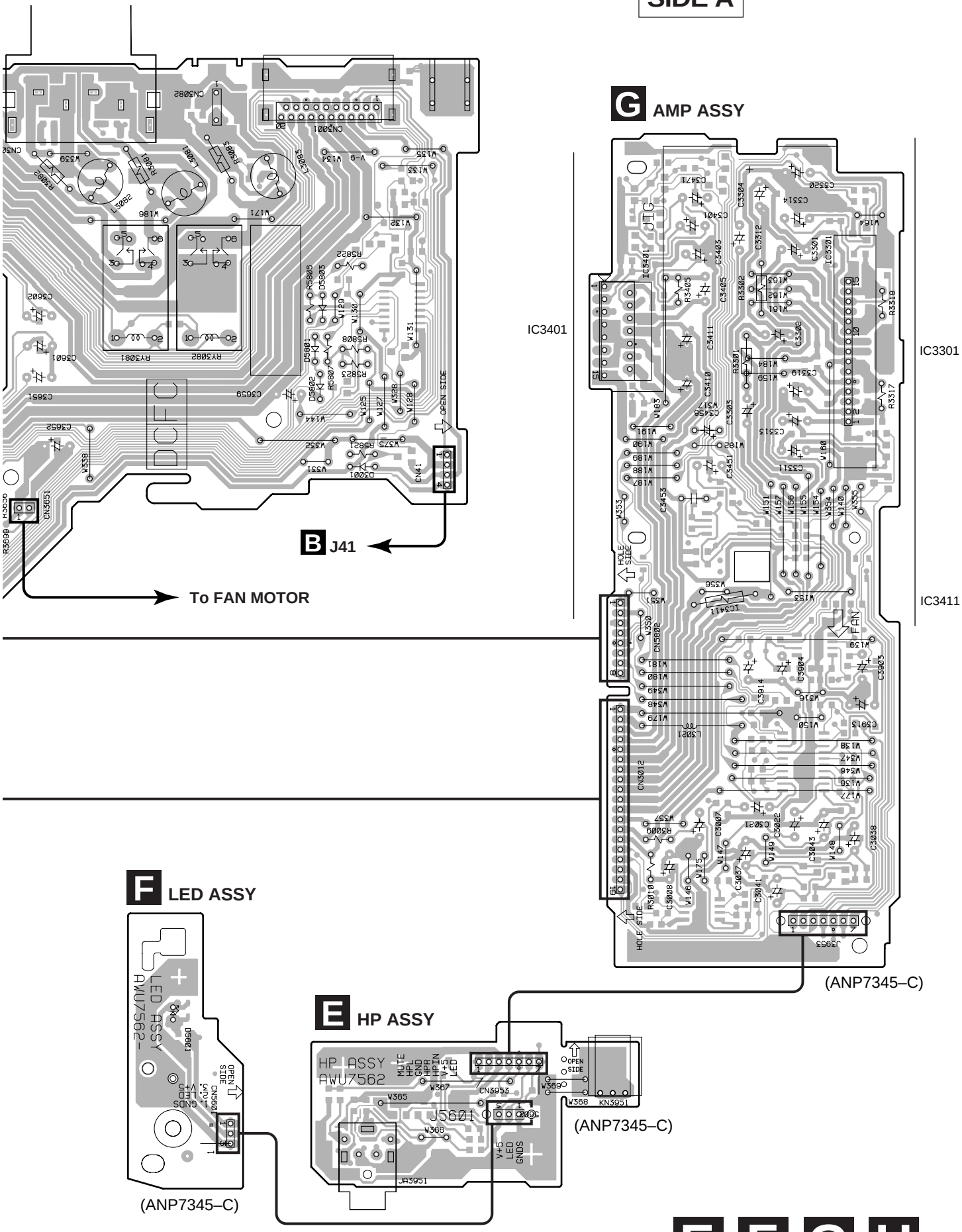



(ANP7345–C)

## 4.2 COMPLEX, AMP, REG, HP and LED ASSYS

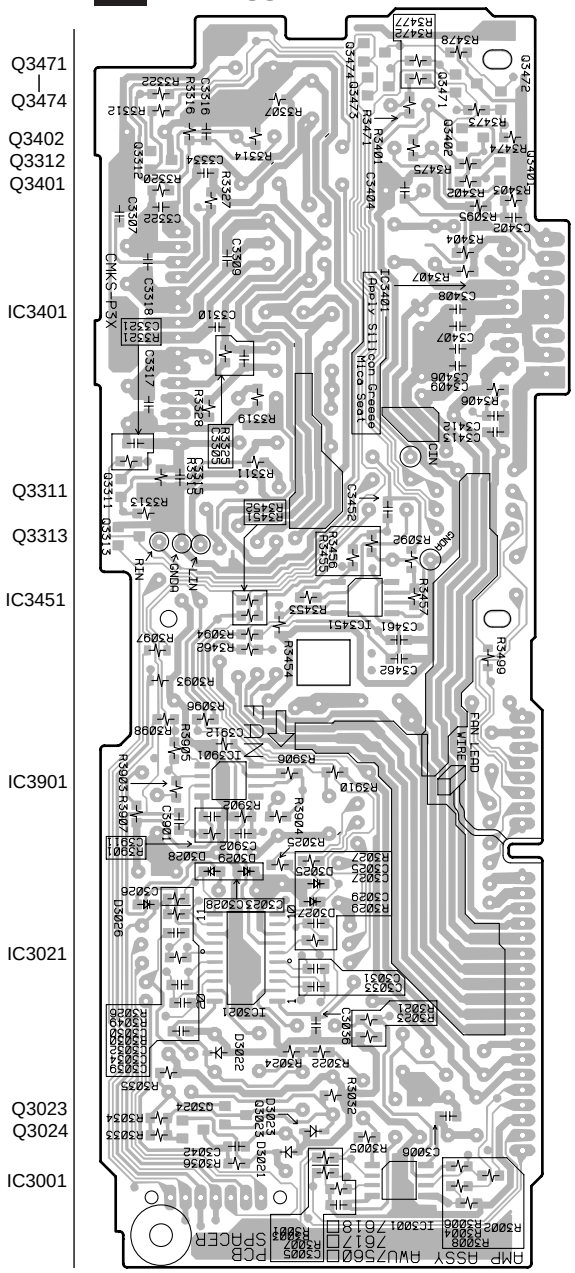


SIDE A


G AMP ASSY
IC3401
IC3301
IC3411
B J41
To FAN MOTOR
(ANP7345–C)
F LED ASSY
LED ASSY
AWU7562-
(ANP7345–C)
E HP ASSY
HP ASSY
AWU7562
(ANP7345–C)

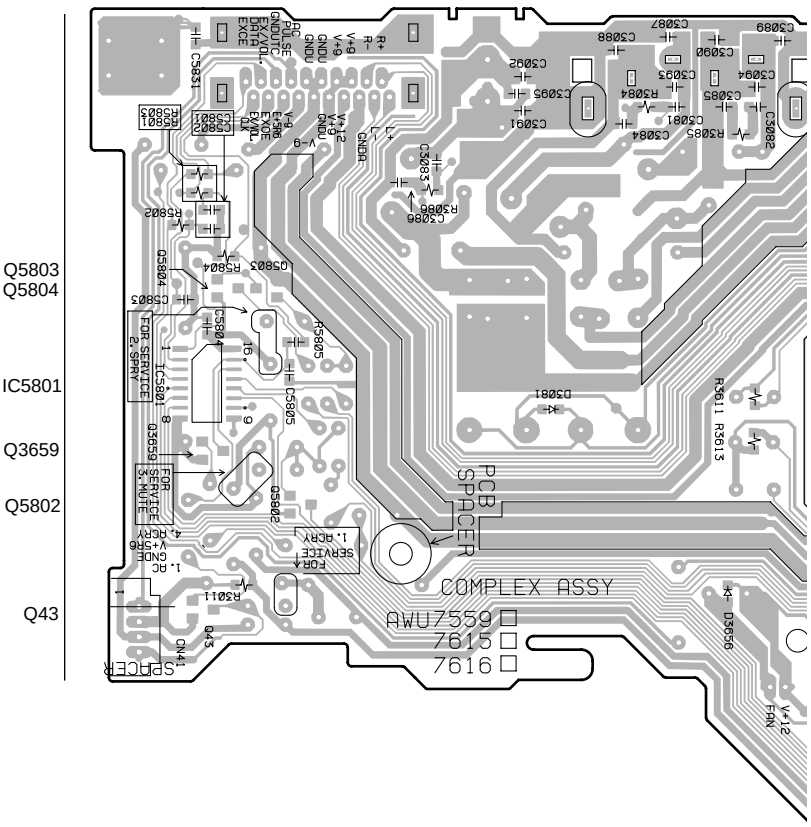
SIDE B

## G AMP ASSY



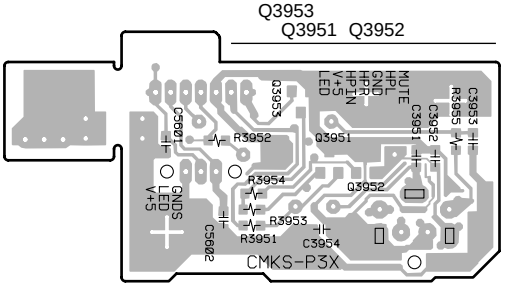

(ANP7345–C)

## H COMPLEX ASSY



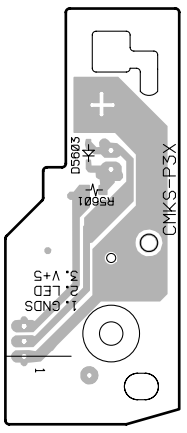

Front

## E HP ASSY



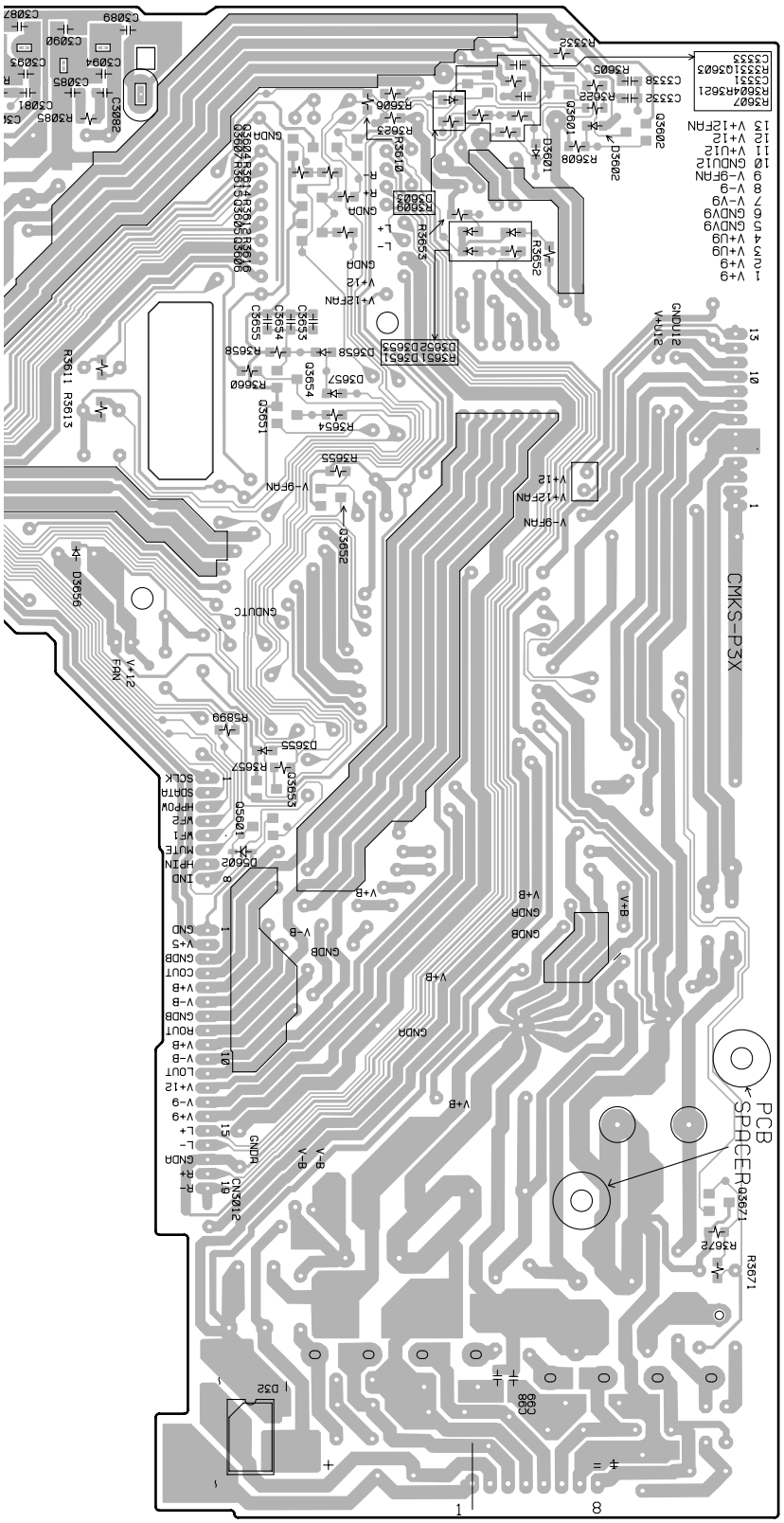

(ANP7345–C)

## F LED ASSY



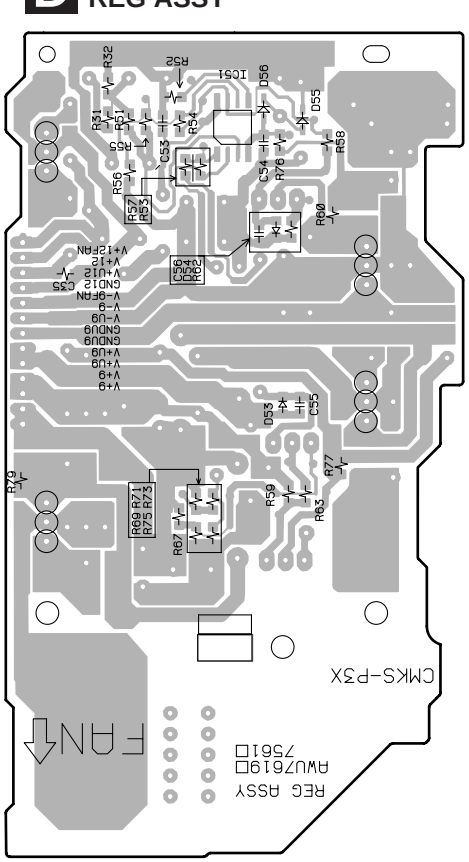

(ANP7345–C)

## SIDE B




(ANP7345–C)

**D** REG ASSY




(ANP7345–C)

**Front**

# 5. PCB PARTS LIST

*NOTES :*
- *Parts marked by "* NSP *" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

*560 Ω → 56 × 10 [1] → 561 ..... RD1/4PU 5 6 1 J*
*47k Ω → 47 × 10 [3] → 473 ..... RD1/4PU 4 7 3 J*
*0.5 Ω → R50 ..... RN2H R 5 0 K*
*1 Ω → 1R0 ..... RS1P 1 R 0 K*

*Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).*

*5.62k Ω → 562 × 10 [1] → 5621 ..... RN1/4PC 5 6 2 1 F*

## ■ LIST OF WHOLE PCB ASSEMBLIES

| Mark | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|
| | | MYXJ type | NVXJ type | KUXJ/CA type | |
| NSP | AMP MAIN Assy | AWM7499 | AWM7499 | AWM7524 | |
| | ├ AC IN Assy | AWU7556 | AWU7556 | AWU7609 | |
| | ├ PRIMARY Assy | AWU7557 | AWU7557 | AWU7658 | |
| | ├ SECONDRY Assy | AWU7558 | AWU7558 | AWU7614 | ∗1 |
| | ├ COMPLEX Assy | AWU7559 | AWU7559 | AWU7616 | |
| | ├ AMP Assy | AWU7560 | AWU7560 | AWU7618 | |
| | ├ REG Assy | AWU7561 | AWU7561 | AWU7619 | ∗2 |
| | ├ LED Assy | AWU7562 | AWU7562 | AWU7562 | |
| | └ HP Assy | AWU7563 | AWU7563 | AWU7563 | |

∗1: Although AWU7558 and AWU7614 are different in part number, they have same service parts.
∗2: Although AWU7561 and AWU7619 are different in part number, they have same service parts.

## ■ CONTRAST OF PCB ASSEMBLIES

### A AC IN Assy

AWU7556 and AWU7609 are constructed the same except for the following:

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | AWU7556 | AWU7609 | |
| ⚠ | L1 | ATF–151 | Not used | |
| ⚠ | C2 (0.01μF/275V) | ACE7013 | Not used | |
| ⚠ | R1 | Not used | RCN1080 | |
| ⚠ | AN1 AC Inlet 1P | BKP1046 | AKP7032 | |

### B PRIMARY Assy

AWU7557 and AWU7658 are constructed the same except for the following:

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | AWU7557 | AWU7658 | |
| ⚠ | T2 | ATT7050 | ATT7049 | |
| ⚠ | C42 | CEAT222M16 | CEAT102M16 | ∗ |

∗: As for the AWU7557, the design change is done like the AWU7658.

## G AMP Assy

AWU7560 and AWU7618 are constructed the same except for the following:

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | AWU7560 | AWU7618 | |
| | L3021 | LAU560J | Not used | * |

*: As for the AWU7560, the design change is done like the AWU7618.

## H COMPLEX Assy

AWU7559 and AWU7616 are constructed the same except for the following:

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | AWU7559 | AWU7616 | |
| ⚠ | IC53 (5A/125V) | Not used | AKE7019 | |
| | D3001 | 1SS133 | 1SS355 | * |
| | L3021 | Not used | LAU560J | * |
| | L3801–L3803 | ATH–059 | ATH–133 | |
| | R3801–R3803 | RD1/4LMF101J | RD1/4LMF100J | |
| | R5699 | Not used | RS1/10S0R0J | * |
| | CN3801 | AKE1025 | AKE7065 | |

*: As for the AWU7559, the design change is done like the AWU7616.

# ■ PCB PARTS LIST FOR MYXJ TYPE

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **A AC IN ASSY** | | |
| | **COILS AND FILTERS** | | |
| ⚠ | L1 | | ATF–151 |
| | **CAPACITORS** | | |
| ⚠ | C2 (0.01µF/275V) | | ACE7013 |
| | **OTHERS** | | |
| ⚠ | CN2 | PLUG 4P | AKM7055 |
| | H101, H102 | FUSE CLIP | AKR7001 |
| ⚠ | AN1 | AC INLET 1P | BKP1046 |
| | **B PRIMARY ASSY** | | |
| | **SEMICONDUCTORS** | | |
| ⚠ | IC41 | | NJM78M56FA |
| | Q41 | | 2SC2412K |
| | Q42 | | DTA124EK |
| | D42, D44 | | 1SS355 |
| ⚠ | D41 | | S1WB(A)60SD |
| | **TRANSFORMER** | | |
| ⚠ | T2 | | ATT7050 |
| | **RELAY** | | |
| ⚠ | RY1 | | ASR7018 |
| | **CAPACITORS** | | |
| ⚠ | C1, C3 (0.01µF/275V) | | ACE7013 |
| | C44 | | CEAT101M10 |
| ⚠ | C42 | | CEAT222M16 |
| | C41 | | CQMBA473J50 |
| | **RESISTORS** | | |
| | All Resistors | | RS1/10S □□□J |
| | **OTHERS** | | |
| | 41 | 4P CABLE HOLDER | 51048–0400 |
| ⚠ | CN3 | SOCKET 4P | AKP7132 |
| ⚠ | CN4 | 2P-VH CONNECTOR | B2P3–VH |
| | J41 | 4P JUMPER WIRE | D20PYY0415E |
| | **C SECONDRY ASSY** | | |
| | **SEMICONDUCTORS** | | |
| ⚠ | IC15 (2.5A/125V) | | AEK7014 |
| ⚠ | IC13, IC14 (7A/125V) | | AEK7021 |
| ⚠ | IC11, IC12 (10A/125V) | | AEK7022 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **OTHERS** | | | |
| | 15 | 8P CABLE HOLDER | 51052–0800 |
| | J15 | JUMPER WIRE | D25XYY0815E |

## H COMPLEX ASSY

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | IC5801 | | BU4094BCF |
| | Q3601–Q3603 | | 2SA1037K |
| | Q3604–Q3606 | | 2SC2412K |
| | Q3607, Q3652 | | 2SD2114K |
| | Q3651, Q5802, Q5804 | | DTA124EK |
| | Q3653 | | DTA124TK |
| | Q3654, Q3659, Q43 | | DTC124EK |
| | Q5601, Q5803 | | DTC143EK |
| | D3001, D3604 | | 1SS133 |
| | D3081, D3601–D3603, D3651–D3653 | | 1SS355 |
| | D3655–D3658 | | 1SS355 |
| ⚠ | D11, D21 | | D3SBA20(B) |
| ⚠ | D32 | | S1WB(A)60SD |
| | D3654 | | S5688G |

### COILS AND FILTERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L3081–L3083 | (5.3µH) | ATH–059 |

### SWITCHES AND RELAYS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | RY3081, RY3082 | | ASR7007 |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠ | C13 | (18000µF/25V) | ACH7099 |
| | C5802, C5803, C5805 | | CCSQCH221J50 |
| | C3602 | | CEAT100M50 |
| | C3659 | | CEAT101M10 |
| | C3651 | | CEAT101M16 |
| | C3601 | | CEAT221M6R3 |
| ⚠ | C36 | | CEAT222M25 |
| | C3652 | | CEAT470M25 |
| ⚠ | C14 | | CEAT682M25 |
| | C3087, C3089, C3091, C3093–C3095 | | CKSQYB102K50 |
| | C3088, C3090, C3092 | | CKSQYB103K50 |
| | C5801 | | CKSQYB472K50 |
| | C3331–C3333, C3338 | | CKSQYB473K50 |
| | C5804 | | CKSQYF104Z25 |
| | C3081–C3086 | | CKSQYF473Z50 |
| ⚠ | C21, C22 | | CQMA223K2E |
| | C11, C12, C37 | | CQMBA473J50 |
| ⚠ | C23, C24 | (4700µ/35V) | RCH1107 |

### RESISTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | R3601–R3603 | (0.1Ω, 1W) | ACN7100 |
| | R3081–R3083 | | RD1/4LMF101J |
| | R3617, R5821, R5822 | | RD1/4PU103J |
| | R5807 | | RD1/4PU1R0J |
| | R5806 | | RD1/4PU222J |
| | R5808 | | RD1/4PU223J |
| | R3699 | | RD1/4PU330J |
| | R5823 | | RD1/4PU472J |
| | Other Resistors | | RS1/10S □□□J |

### OTHERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | CN3082 | 2P CONNECTOR | 5569–02A1 |
| | 3081 | SPEAKER TERMINAL 4-P | AKE1025 |
| | CN3001 | 20P SOCKET | AKP7129 |
| | CN52 | 13P PLUG | KM200TA13 |
| | CN3011 | 19P PLUG | KM200TA19 |
| | CN5801 | 8P PLUG | KM200TA8 |
| | CN11 | L-CONNECTOR (8P) | KPD8L |
| | 3082 | SCREW PLATE | VNE1948 |

## G AMP ASSY

### SEMICONDUCTORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | IC3001, IC3451, IC3901 | | BA4558F–HT |
| | IC3021 | | M62421FP |
| ⚠ | IC3301 | | STK402–040 |
| ⚠ | IC3401 | | TDA7294V |
| | Q3023, Q3024 | | 2SC2412K |
| | Q3311, Q3312, Q3401, Q3471, Q3472 | | 2SD2114K |
| | Q3313, Q3402, Q3473, Q3474 | | DTA124EK |
| | D3021 | | UDZS10B |

### COILS AND FILTERS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | L3021 | | LAU560J |

### CAPACITORS

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C3321, C3322 | | CCSQCH221J50 |
| | C3025, C3027 | | CCSQCH470J50 |
| | C3317, C3318 | | CCSQCJ3R0C50 |
| | C3315, C3316 | | CCSQSL471J50 |
| | C3313, C3314 | | CEANP4R7M50 |
| | C3038, C3041, C3471 | | CEAT100M50 |
| | C3007, C3008, C3043, C3913 | | CEAT101M10 |
| | C3303, C3304 | | CEAT101M35 |
| | C3405, C3410, C3411 | | CEAT220M50 |
| | C3037 | | CEAT221M6R3 |
| | C3301, C3302, C3403 | | CEAT330M50 |
| | C3021, C3022 | | CEAT3R3M50 |
| | C3451 | | CEAT470M16 |
| | C3401 | | CEAT4R7M50 |
| | C3311, C3312 | | CECAR47M50 |
| | C3914 | | CEJQ101M10 |
| | C3319, C3320 | | CEJQ330M10 |
| | C3903, C3904 | | CEJQ470M16 |
| | C3402 | | CKSQYB102K50 |
| | C3005, C3006, C3028, C3036, C3039 | | CKSQYB103K50 |
| | C3305, C3309, C3310, C3334, C3404 | | CKSQYB103K50 |
| | C3406, C3407, C3461, C3462 | | CKSQYB103K50 |
| | C3033, C3034 | | CKSQYB223K25 |
| | C3029, C3030 | | CKSQYB333K25 |
| | C3452 | | CKSQYB333K50 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C3412, C3413 | | CKSQYB473K50 |
| | C3031, C3032 | | CKSQYB474K16 |
| | C3023, C3911, C3912 | | CKSQYF104Z25 |
| | C3026, C3901, C3902 | | CKSQYF105Z16 |
| | C3408, C3409 | | CKSQYF473Z50 |
| | C3453 | | CQMBA683J50 |
| | **RESISTORS** | | |
| | R3301, R3302 | | RD1/4LMF101J |
| | R3317, R3318, R3405 | | RD1/4PU563J |
| | R3009, R3010 | | RD1/4PU820J |
| | R3001–R3008 | | RS1/10S1202F |
| | Other Resistors | | RS1/10S □□□J |
| | **OTHERS** | | |
| | 3953 | 7P CABLE HOLDER | 51048–0700 |
| | J3953 | JUMPER WIRE | D20PYY0710E |
| | CN3012 | 19P SOCKET | KP200TA19L |
| | CN5802 | 8P SOCKET | KP200TA8L |

## D REG ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| | IC51 | | BA4558F–HT |
| ⚠ | IC31 | | NJM7812FA |
| | Q54 | | 2SA933S |
| | Q53 | | 2SB1237X |
| | Q55 | | 2SC1740S |
| ⚠ | Q51, Q52 | | 2SD2395 |
| | Q57 | | 2SD2395 |
| | D53, D54 | | 1SS355 |
| | D35 | | MTZJ6.8B |
| | D55, D56 | | UDZS5.1B |
| | **CAPACITORS** | | |
| | C34 | | CEAT100M50 |
| | C51, C57, C58 | | CEAT330M50 |
| | C53 | | CKSQYB103K50 |
| | C56 | | CKSQYB104K16 |
| | C35, C54 | | CKSQYB473K25 |
| | C55 | | CKSQYB474K16 |
| | **RESISTORS** | | |
| ⚠ | R61 | | RFA1/4PS100J |
| ⚠ | R65 | | RFA1/4PS151J |
| ⚠ | R81, R83 | | RS1LMFR22J |
| | Other Resistors | | RS1/10S □□□J |
| | **OTHERS** | | |
| | CN51 | 13P SOCKET | KP200TA13L |

## F LED ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| | D5601 | | SLR–343VC |
| | **RESISTORS** | | |
| | All Resistors | | RS1/10S □□□J |

## E HP ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| | Q3951, Q3952 | | 2SD2114K |
| | Q3953 | | DTA124EK |
| | **CAPACITORS** | | |
| | C3951–C3954 | | CKSQYB103K50 |
| | C5601 | | CKSQYF104Z25 |
| | C5602 | | CKSQYF105Z16 |
| | **RESISTORS** | | |
| | All Resistors | | RS1/10S □□□J |
| | **OTHERS** | | |
| | 5602 | 3P CABLE HOLDER | 51048–0300 |
| | JA3951 | JACK | AKN7013 |
| | J5601 | 3P JUMPER WIRE | D20PYY0305E |
| | KN3951 | EARTH METAL FITTING | VNF1084 |

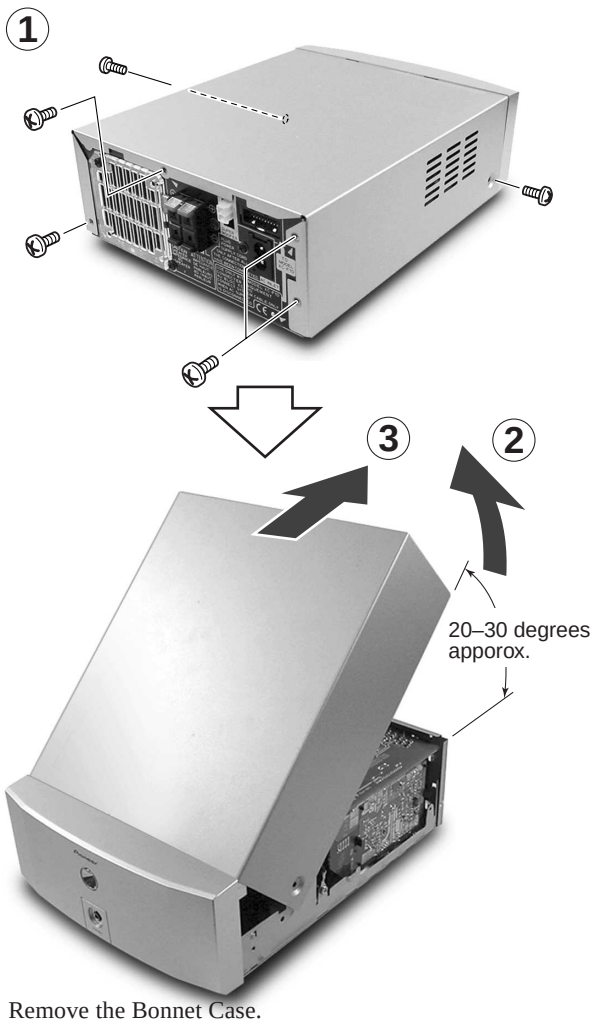
# 6. ADJUSTMENT

There is no information to be shown in this chapter.

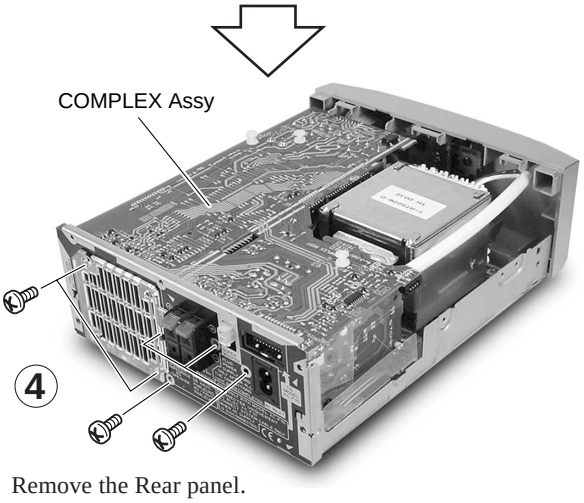
# 7. GENERAL INFOMATION

## 7.1 DIAGNOSIS

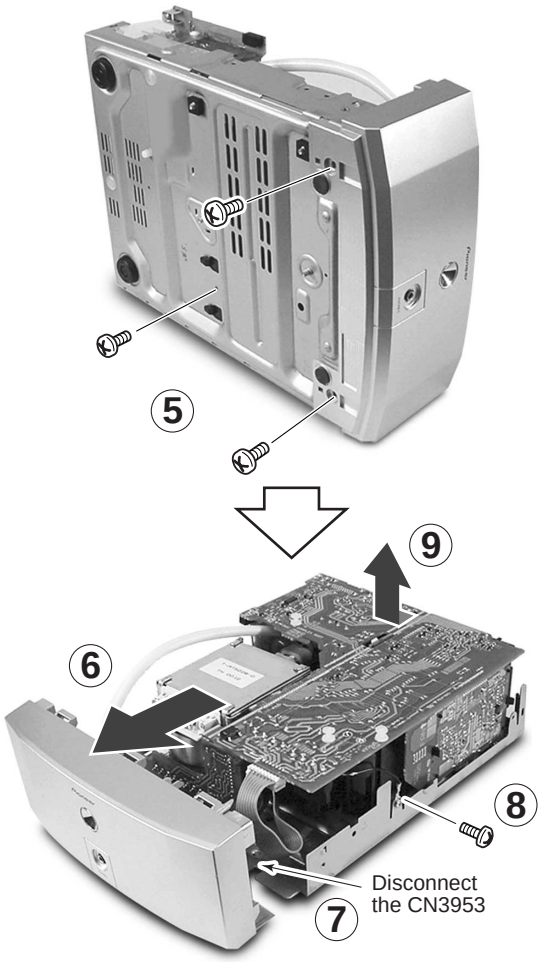
### 7.1.1 DISASSEMBLY



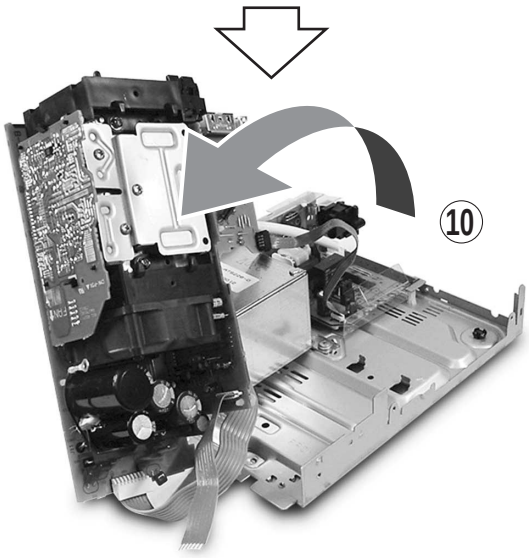

Remove the Bonnet Case.




Remove the Rear panel.



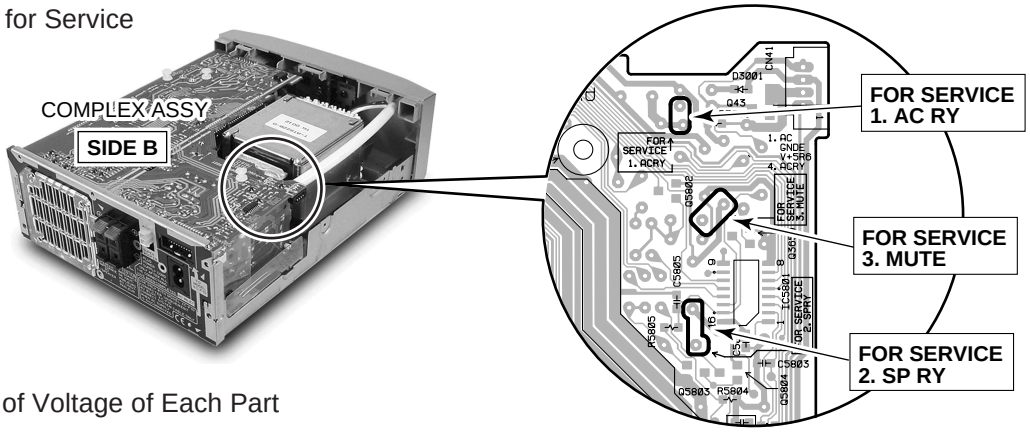

Remove the Front Panel.



## 7.1.2 SINGLE OPERATION METHOD

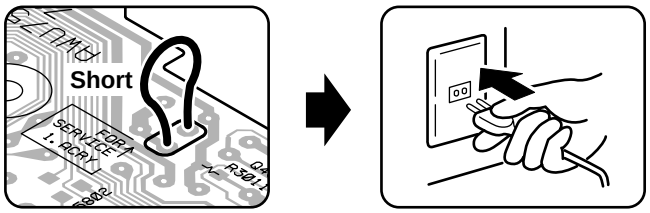
### ■ Voltage of each part and method of diagnosing each IC

● Test Point for Service




● Diagnosis of Voltage of Each Part

① **FOR SERVICE 1. AC RY** point of the COMPLEX Assy is short-circuited (AC RELAY ON), and the AC power code is inserted in the power supply outlet.



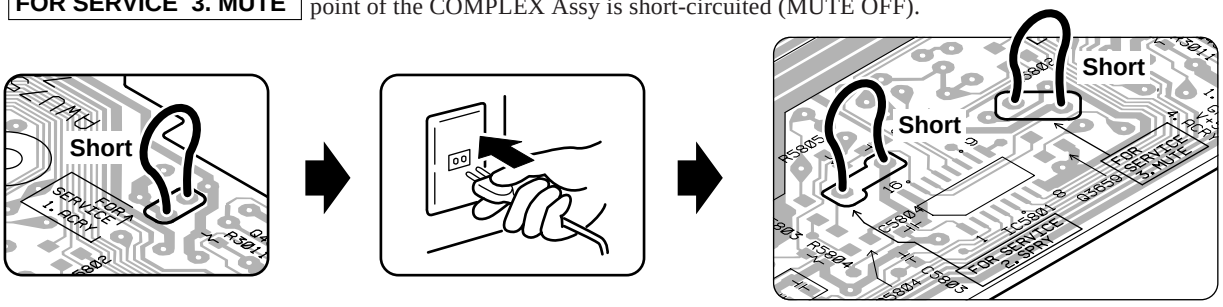

② The voltage of each part is checked.
Refer to next page (diagnosis point).

● Diagnosis of Each IC

① **FOR SERVICE 1. AC RY** point of the COMPLEX Assy is short-circuited (AC RELAY ON), and the AC power code is inserted in the power supply outlet.

② **FOR SERVICE 2. SPRY** point of the COMPLEX Assy is short-circuited (SP RELAY ON).

③ **FOR SERVICE 3. MUTE** point of the COMPLEX Assy is short-circuited (MUTE OFF).



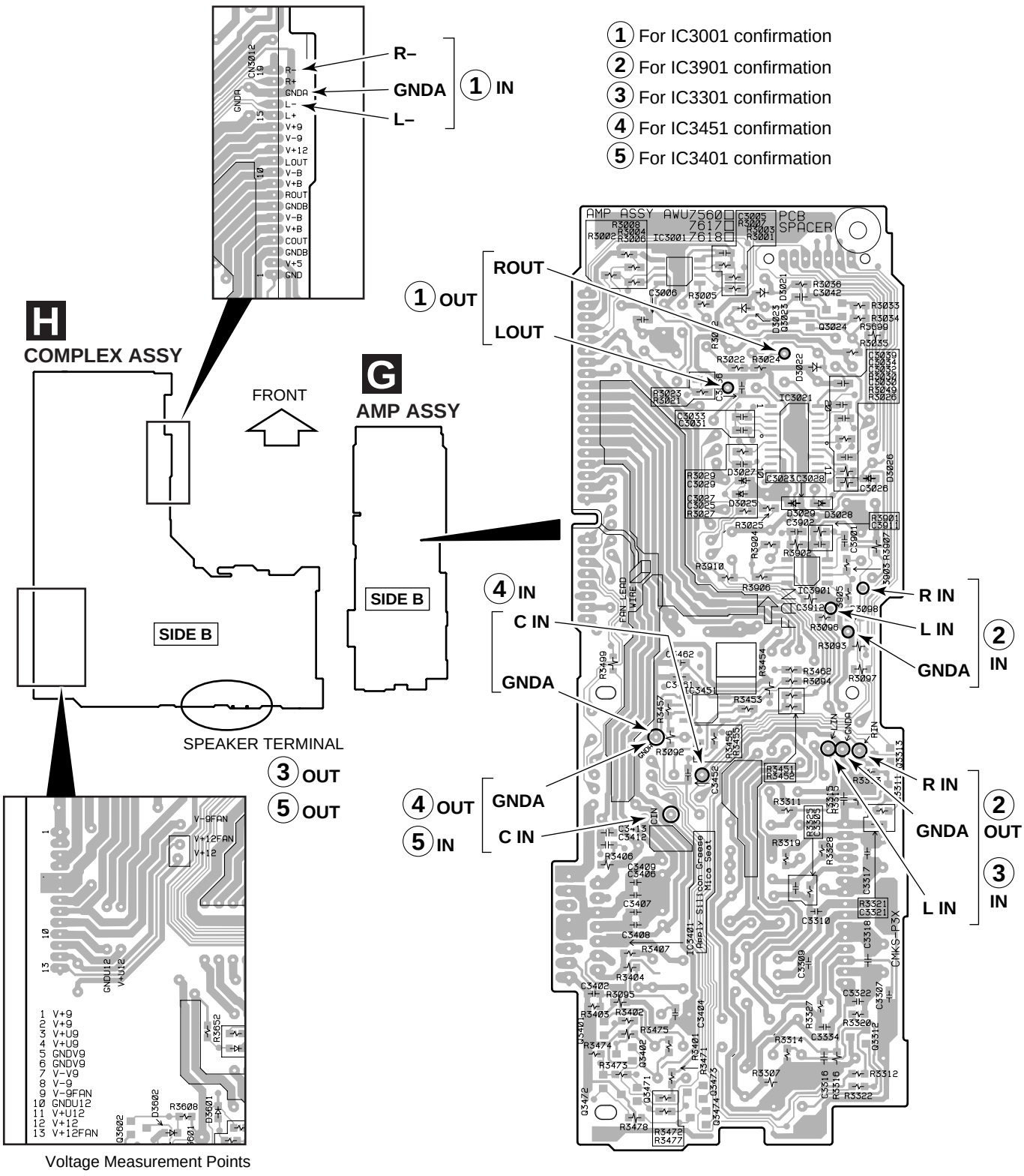

④ The AUDIO signal (About 1kHz) is input to the input side of each IC, and the output is confirmed.
Refer to next page (diagnosis point).

OP amplifier (AMP Assy) . . . . . IC3001, IC3901, and IC3451
Amplifier (AMP Assy) . . . . . IC3301 and IC3401

● Diagnosis of IC3021

Note: The single operation confirmation cannot be done, because IC3021(E-VOL) is controlled with the microcomputer of Stereo CD tuner (XC-F10).

● Diagnosis Points




Voltage Measurement Points

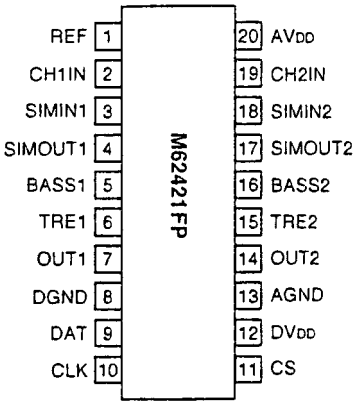
- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

## 7.2 IC

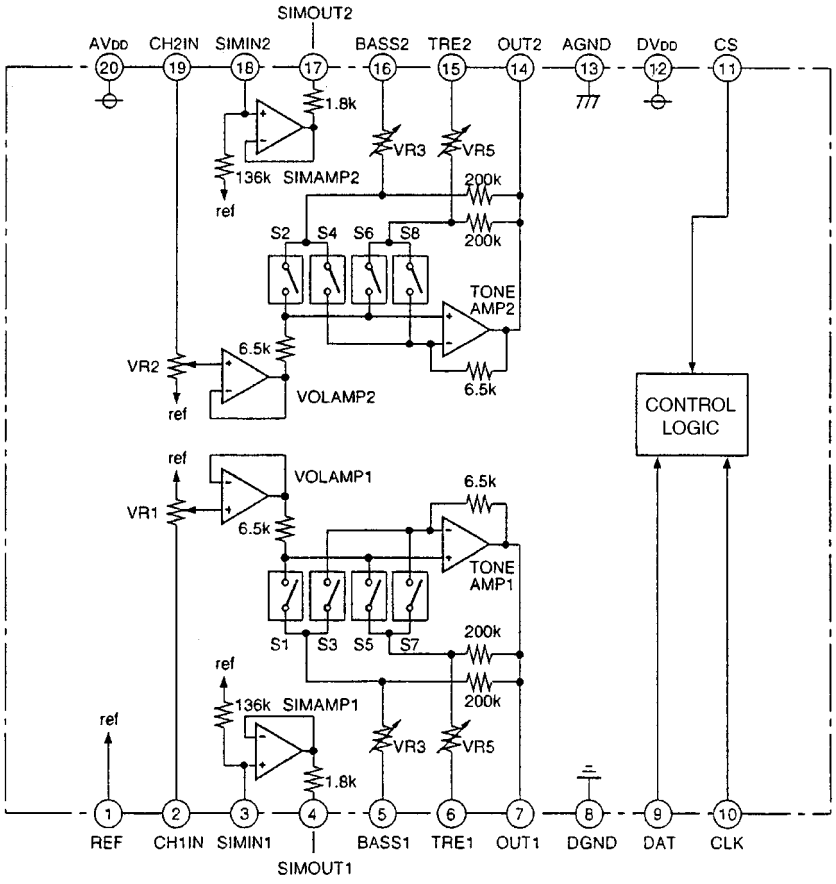
### ■ M62421FP (IC3021: AMP ASSY)

### ● Digital Sound Controller built-in Tone Control

● Pin Assignment (Top View)




● Block Diagram




● Pin Function

| No. | Name | I/O | Description |
|---|---|---|---|
| 1 | REF | I | Standard voltage input terminal |
| 2 | CH1IN | I | Signal input terminal for channel 1 |
| 3 | SIMIN1 | I | Capacitor installation terminal for Simulated inductor 1 |
| 4 | SIMOUT1 | O | |
| 5 | BASS1 | I | Capacitor installation terminal for Bass adjustment of channel 1 side |
| 6 | TRE1 | I | Capacitor installation terminal for Treble adjustment of channel 1 side |
| 7 | OUT1 | O | Signal output terminal after volume is controlled of channel 1 side |
| 8 | DGND | — | Ground terminal for digital circuit |
| 9 | DAT | I | Input/Output terminal for control data |
| 10 | CLK | I | Clock input terminal for serial data transfer |

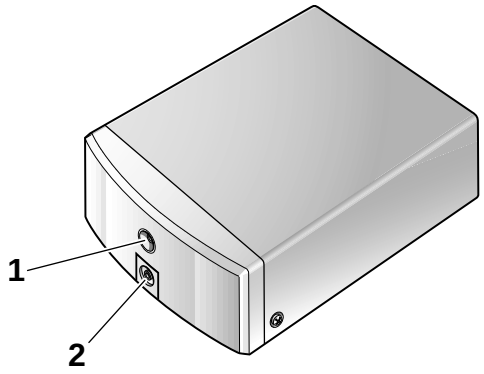
| No. | Name | I/O | Description |
|---|---|---|---|
| 11 | CS | I | Chip select signal terminal |
| 12 | DVDD | — | Power supply terminal for digital circuit |
| 13 | AGND | — | Ground terminal for analog circuit |
| 14 | OUT2 | O | Signal output terminal after volume is controlled of channel 2 side |
| 15 | TRE2 | I | Capacitor installation terminal for Treble adjustment of channel 2 side |
| 16 | BASS2 | I | Capacitor installation terminal for Bass adjustment of channel 2 side |
| 17 | SIMOUT2 | O | Capacitor installation terminal for Simulated inductor 2 |
| 18 | SIMIN2 | I | |
| 19 | CH2IN | I | Signal input terminal for channel 2 |
| 20 | AVDD | — | Power supply terminal for analog circuit |

# 8. PANEL FACILITIES AND SPECIFICATIONS

## 8.1 PANEL FACILITIES

1 **Power indicator** – lights when the system is on

2 **Headphone jack** – plug in a pair of headphones for private listening (the sound from the speakers is muted when headphones are plugged in)




## 8.2 SPECIFICATIONS

### For MYXJ Type

Continuous Power Satellite (RMS) ..... 30 W + 30 W (3 kHz, THD 10%, 8 Ω)
Continuous Power Subwoofer (RMS) ..... 50 W (70 Hz, THD 10%, 4 Ω)
Continuous Power Satellite (DIN) ..... 23 W + 23 W (3 kHz, THD 1%, 8 Ω)
Continuous Power Subwoofer (DIN) ..... 43 W (70 Hz, THD 1%, 4 Ω)
Power Requirements ..... AC 220-230 V, 50/60 Hz
Power Consumption (ON mode) ..... 127 W
Power Consumption (Standby mode) ..... 0.9 W
Dimensions ..... 190 (W) × 80 (H) × 267 (D) mm
Weight ..... 4.0 kg

• Above specifications are for when the power supply is 230 V.

### For NVXJ Type

Continuous Power (RMS)
Satellite ..... 30 W + 30 W (3 kHz, THD 10%, 8 W)
Subwoofer ..... 50 W (70 Hz, THD 10%, 4 W)
Continuous Power (DIN)
Satellite ..... 23 W + 23 W (3 kHz, THD 1%, 8 W)
Subwoofer ..... 43 W (70 Hz, THD 1%, 4 W)

Power Requirements ..... AC 230 V, 50/60 Hz (UK model)
..... AC 240 V, 50/60 Hz (Non-UK model)
Power Consumption (ON mode) ..... 127 W (UK model)
..... 110 W (Non-UK model)
Power Consumption (Standby mode) ..... 0.9 W
Dimensions ..... 190 (W) x 80 (H) x 267 (D) mm
Weight ..... 4.0 kg

### For KUXJ/CA Type

Output for Satellite Speakers

**Continuous average power output of 20 watts* per channel, min., at 8 ohms, from 200 Hz to 20,000 Hz with no more than 0.9 %** total harmonic distortion.**

Output for Subwoofer Speaker

**Continuous average power output of 30 watts* min., at 4 ohms, from 40 Hz to 200 Hz with no more than 0.9 %** total harmonic distortion.**

* *Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers.*

** *Measured by Audio Spectrum Analyzer.*

Continuous Power Satellite (RMS) ..... 30 W + 30 W (3 kHz, THD 10%, 8 Ω)
Continuous Power Subwoofer (RMS) ..... 50 W (70 Hz, THD 10%, 4 Ω)
Power Requirements ..... AC 120 V, 60 Hz
Power Consumption (ON mode) ..... 125 W, 160 VA
Power Consumption (Standby mode) ..... 0.9 W
Dimensions ..... 190 (W) × 80 (H) × 267 (D) mm (7 1/2(W) x 3 1/8(H) x 10 1/2(D) in.)
Weight ..... 4.0 kg (8 lb. 13 oz.)

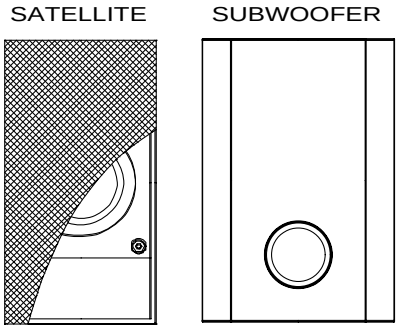
**Accessories**

Remote control unit ..... 1
Stand A ..... 1
Stand B ..... 1
Paper pattern ..... 1
System cable ..... 1
FM wire antenna ..... 1
AM loop antenna ..... 1
Lithium battery (CR2025) ..... 1
AC power cord ..... 1
Operating instructions ..... 1
Warranty card ..... 1

**NOTE:** *Specifications and design subject to possible modification without notice, due to improvements.*

# Service Manual

Pioneer




ORDER NO.
**RRV2371**

## SPEAKER SYSTEM

# S-NS1-LRW XJC/E

# S-NS1-LRW XJC/NC

● **This product is component of system.**

| Component | System | Service Manual | Remarks |
|---|---|---|---|
| COMPACT MINI COMPONENT | X-NS1 | ——— | |
| STEREO CD TUNER | XC-NS1 | RRV2348 | |
| STEREO POWER AMPLIFIER | M-NS1 | RRV2349 | |
| SPEAKER SYSTEM | S-NS1-LRW<br>├S-NS1-LR<br>└S-NS1-W | RRV2371 | This service manual<br>(2 pieces)<br>(1 piece) |

## FOR PRECAUTION OF REASSEMBLY AND DISASSEMBLY

**[ S-NS1-W ] ( Subwoofer )**

- The woofer is attached to the back board by 4 external screws. To detach it, unfasten those screws. When attaching it, face its terminal downward.
- The cosmetic baffle is attached to the baffle by press-fitting. To detach it, pry it open by inserting a flat blade screwdriver into the lower side.
- The input terminal is attached to the back board by press-fitting. To detach it, pry it open by inserting a flat blade screwdriver.

**[ S-NS1-LR ] ( Satellite Speaker )**

- The grille is attached to the cabinet by catches. To detach it, pull it toword you.
- The speaker element is attached to the baffle by 2 external screws. To detach it, first remove the stand. The stand is attached the cabinet by 3 external screws.To detached it unfasten those screws. Next remove the cabinet. The cabinet is attached the baffle by 6 external screws. To detached it unfasten those screws. Then remove the speaker element.When attaching it, face its terminal upward.
- The input terminal is attached to the cabinet by 2 internal screws. To detach it, first remove the cabinet. Then remove the input terminal.

**PIONEER CORPORATION** 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
**PIONEER ELECTRONICS SERVICE, INC.** P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
**PIONEER EUROPE NV** Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936
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# PARTS LIST

*NOTES:* ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

| Mark | No. | Description | Part No. |
|---|---|---|---|
| for XJC/E Type | | | |
| NSP | | Speaker System (Satellite) | S-NS1-LR/XJC/E |
| NSP | | Speaker System (Sub Woofer) | S-NS1-W/XJC/E |
| for XJC/NC Type | | | |
| NSP | | Speaker System (Satellite) | S-NS1-LR/XJC/NC |
| NSP | | Speaker System (Sub Woofer) | S-NS1-W/XJC/NC |

## For Packing

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | Speaker Cable ASSY | SDS1085 |
| NSP | | ├ Binder | KNK-431 |
| | | ├ Speaker Cord ( for Sub Woofer ) | SDF1082 |
| | | ├ Speaker Cord ( for Satellite ) | SDS1090 |
| | | └ Polyethylene Bag S1 | SHL1264 |
| NSP | | Stand ASSY | SNX1142 |
| | | ├ Non-Skid Pad | SEC1474 |
| | | └ Stand | SNK2481 |
| | | Top Protector | SHA2231 |
| | | Middle Protector | SHA2232 |
| | | Bottom Protector | SHA2233 |
| | | Packing Case (for XJC/E Type) | SHG2308 |
| | | Packing Case (for XJC/NC Type) | SHG2309 |
| | | Polyethylene Bag S5 (for Sub Woofer) | SHL1248 |
| | | Polyethylene Bag S2 (for Stand) | SHL1269 |
| | | Polyethylene Bag S2 (for Satellite) | SHL1270 |

## For S-NS1-LR

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | Grille (Gray) | SMG1692 |
| NSP | | ├ Grille Cloth | SAS1479 |
| NSP | | └ Grille Frame | SMH1013 |
| NSP | | Inner Baffle | SNK2471 |
| NSP | | Cabinet | SNK2472 |
| | | Stand | SNK2480 |
| NSP | | Label Back (for XJC/E Type) | SAN2877 |
| NSP | | Label Back (for XJC/NC Type) | SAN2879 |
| | | Connect Cord | SDD1274 |
| NSP | | Damper | SEC1490 |
| NSP | | Acoustic Absorbent (100 x 75) | SMV1992 |
| NSP | | Acoustic Absorbent (120 x 25) | SMV2007 |
| | | Speaker | B70AC50-51F |
| | | Screw ( for Input Terminal ) | BPZ30P080FZK |
| | | Screw ( Stand-Cabinet, Cabinet-Baffle ) | BPZ40P120FZK |

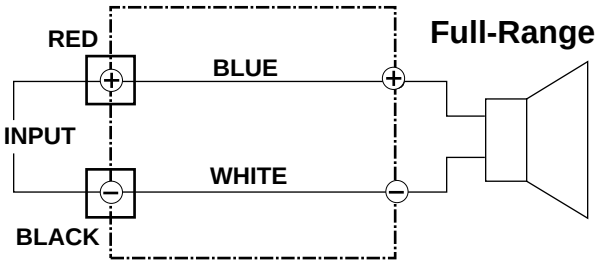
## For S-NS1-W

| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | | Cabinet | SMM1922 |
| NSP | | Label Back (for XJC/E Type) | SAN2878 |
| NSP | | Label Back (for XJC/NC Type) | SAN2880 |
| | | Connect Cord | SDD1273 |
| | | Non-Skid Pad | SEC1473 |
| NSP | | Packing (250 x 6) | SEC1475 |
| NSP | | Packing (125 x6) | SEC1476 |
| NSP | | Packing (for Tube) | SEC1505 |
| | | Input Terminal | SKX1060 |
| NSP | | Cosmetic Duct | SMR1318 |
| NSP | | Paper Tube 50 | SMR1321 |
| NSP | | Acoustic Absorbent ( for Bottom) | SMV1984 |
| NSP | | Acoustic Absorbent ( for Back ) | SMV2009 |
| NSP | | Cosmetic Baffle (Gray) | SNK2477 |
| NSP | | Cosmetic Baffle (Silver) | SNK2478 |
| | | Speaker | A14ER75-52C |
| | | Screw ( forCosmetic Baffle) | BPZ40P120FZK |
| | | Screw ( for Speaker ) | BYC40P200FZB |
| | | Staple | ZMA-8008B |

# SCHEMATIC DIAGRAM

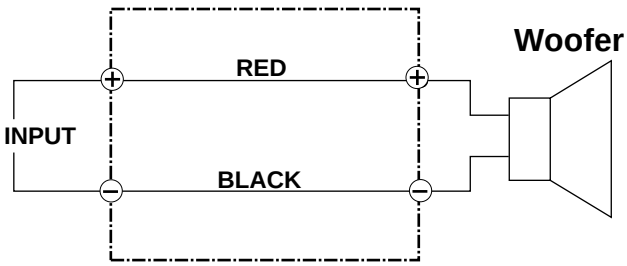
**Satellite**

**Connect Cord (SDD1274)**



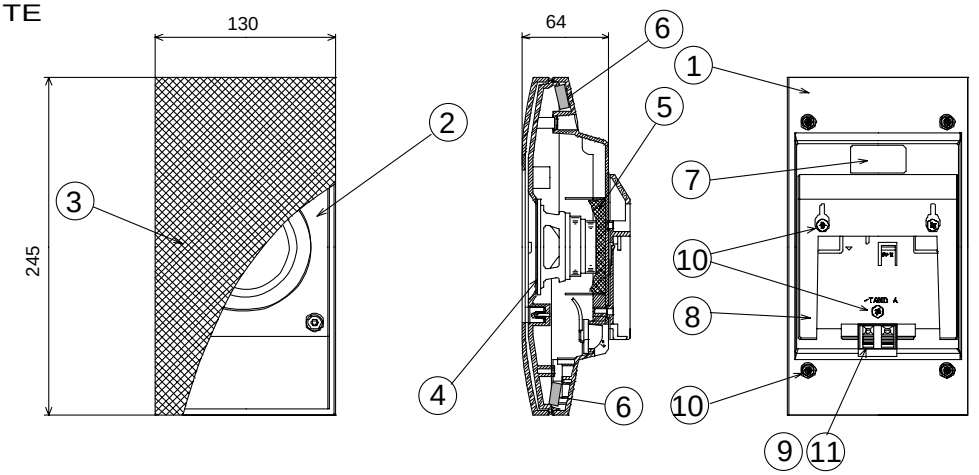

**Sub Woofer**

**Connect Cord (SDD1273)**



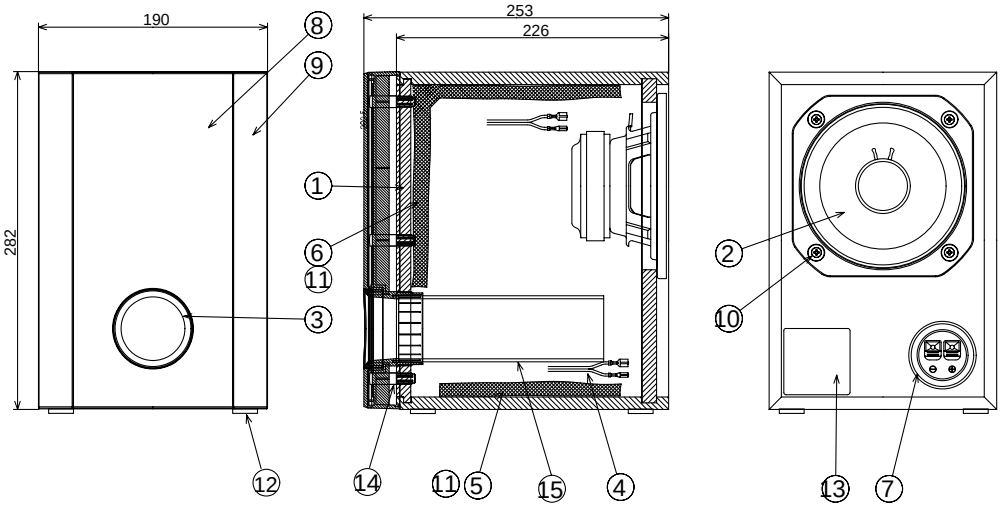
# PRODUCT APPEARANCE

● SATELLITE



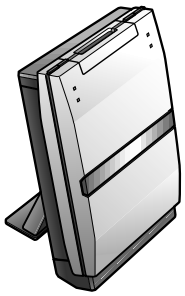

| No. | Part name | Num. | Remarks | No. | Part name | Num. | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Cabinet | 1 | | 11 | Connect Cord | 1 | SDD1274 |
| 2 | Inner Baffle | 1 | | 12 | | | |
| 3 | Grille | 1 | | 13 | | | |
| 4 | Speaker | 1 | | 14 | | | |
| 5 | Acoustic Absorbent | 1 | SMV1992 | 15 | | | |
| 6 | Acoustic Absorbent | 2 | SMV2007 | 16 | | | |
| 7 | Label Back | 1 | | 17 | | | |
| 8 | Stand | 1 | | 18 | | | |
| 9 | Screw | 2 | BPZ30P080FZK | 19 | | | |
| 10 | Screw | 9 | BPZ40P120FZK | 20 | | | |

● SUBWOOFER




| No. | Part name | Num. | Remarks | No. | Part name | Num. | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Cabinet | 1 | | 11 | Staple | 6 | 80/8 BEA |
| 2 | Speaker | 1 | | 12 | Non Skid Pad | 4 | |
| 3 | Cosmetic Duct | 1 | | 13 | Label Back | 1 | |
| 4 | Connection Cord | 1 | | 14 | Screw | 6 | BPZ40P120FZK |
| 5 | Acoustic Absorbent | 1 | SMV1984 | 15 | Paper Tube 50 | 1 | |
| 6 | Acoustic Absorbent | 1 | SMV2008 | 16 | | | |
| 7 | Input Terminal | 1 | | 17 | | | |
| 8 | Cosmetic Baffle | 1 | SNK2478 | 18 | | | |
| 9 | Cosmetic Baffle | 1 | SNK2477 | 19 | | | |
| 10 | Screw | 4 | BYC40P200FZB | 20 | | | |

# Service Manual



ORDER NO.
**RRV2363**

## MINIDISC RECORDER

# MJ-NS1

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Type | Model | Power Requirement | Remarks |
|---|---|---|---|
| | MJ-NS1 | | |
| ZPWXJ | ○ | DC power supplied from other system component | |

- **This product is a system(s) component.**
  **This product does not function properly independently ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.**
- **Please connect it to the STEREO CD TUNER XC-NS1 and STEREO POWER AMPLIFIER M-NS1 for adjustment and operation inspection.**

| Component | Model | Service manual | Remarks |
|---|---|---|---|
| STEREO CD TUNER | XC-NS1 | RRV2348 (RRV2341) | |
| STEREO POWER AMPLIFIER | M-NS1 | RRV2349 (RRV2321) | |
| SPEAKER SYSTEM | S-NS1-LRW | RRV2371 | Except YPWXJ type |
| MINIDISC RECORDER | MJ-NS1 | RRV2363 | This manual. |

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**PIONEER CORPORATION** 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
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**PIONEER EUROPE NV** Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936


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T – ZZV AUG. 2000 Printed in Japan

# 1. SAFETY INFORMATION

**This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.**
**Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.**

**Additional Laser Caution**

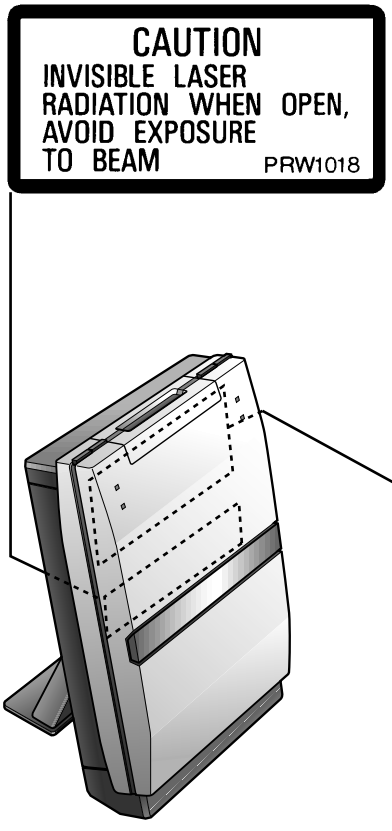
**Control method of the current through a laser diode.**
The resistor R105 on the CORE MAIN UNIT ASSY (For MD mechanism assy) are for the limiting of current through a laser diode.

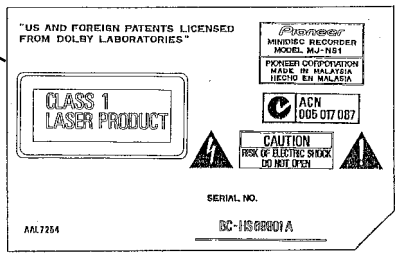
**Control method of the laser output power**
The laser pickup assy provide the photo-diodes and APC (Auto Power Control) circuit.
The photo-diode detect output of the laser diode then IC104 control the APC circuit according to the signal voltage of the photo-diode via IC101.
The Variable resistancer on the FPC in the Laser pickup assy can be adjusted the output level of Laser diode to fix the rated output level.

**Laser Interlock Switch**
The loading position detect switch S101 is set to " LOAD ON " (ON: low level, OFF: high level) position, IC104 get the " LOAD " signal, and hand the laser " LDON " signal to No. 9 terminal (LDON) of the Laser pickup assy.
Then a laser diode can be lighted exept when the level of signal "LOAD " is low.

∗ Refer to page 30.

**LABEL CHECK**




IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUTED PERSON.

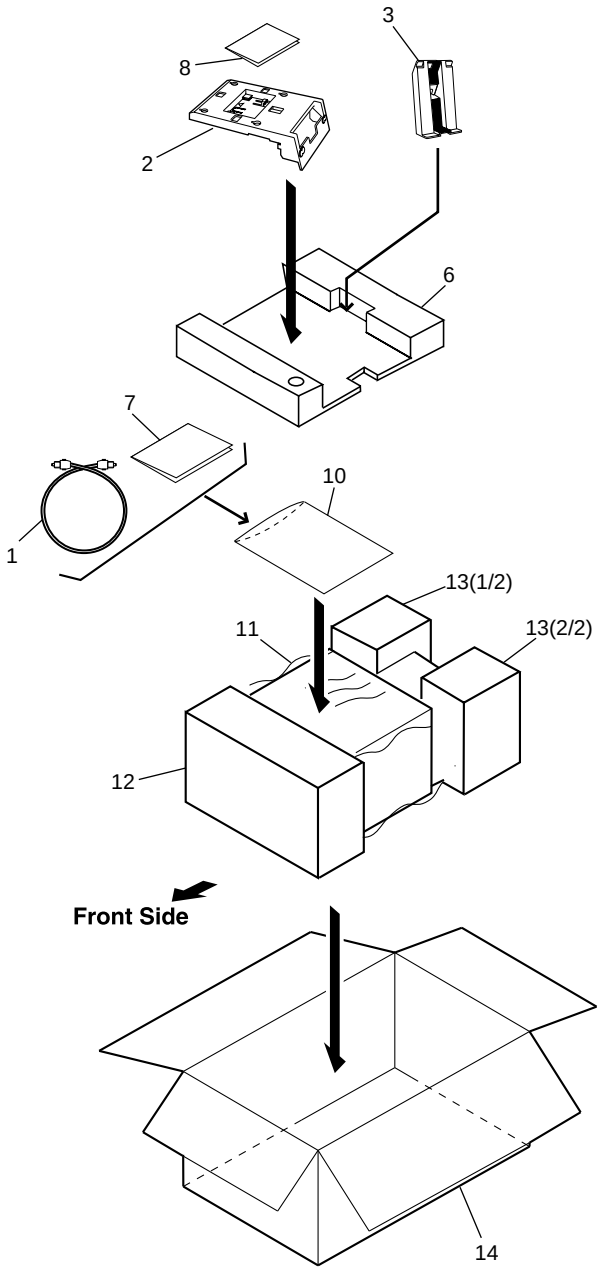
LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 32 mW
WAVELENGTH: 785 nm

# 2. EXPLODED VIEWS AND PARTS LIST

*NOTES:* ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screws adjacent to ▼ mark on the product are used for disassembly.*

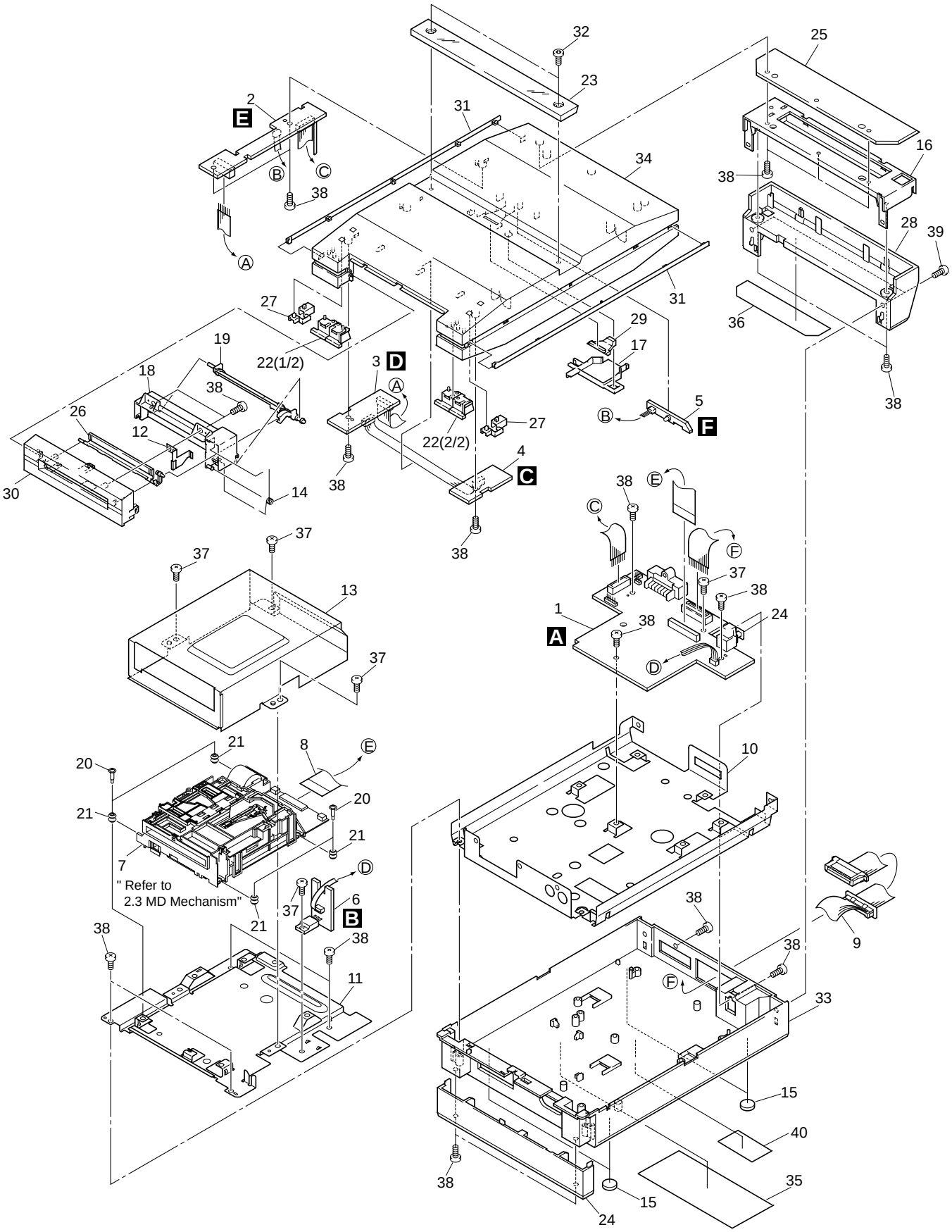
## 2.1 PACKING




### (1) PACKING PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Optical Digital Cable | RKX1031 |
| | 2 | Stand A | AXG7096 |
| | 3 | Stand B | AXG7097 |
| | 4 | • • • • • • • | |
| | 5 | • • • • • • • | |
| | 6 | Spacer MD ,TC | AHB7038 |
| | 7 | Operating Instructions (English/Chinese) | ARE7266 |
| NSP | 8 | Warranty Card | ARY7027 |
| | 9 | • • • • • • • | |
| NSP | 10 | Polyethylene Bag (230×340×0.03) | Z21-038 |
| | 11 | Sheet (550×550×0.5) | Z23-026 |
| | 12 | Front Pad M (PLS) | AHA7295 |
| | 13 | Rear Pad M (PLS) | AHA7296 |
| | 14 | Packing Case | AHD7901 |

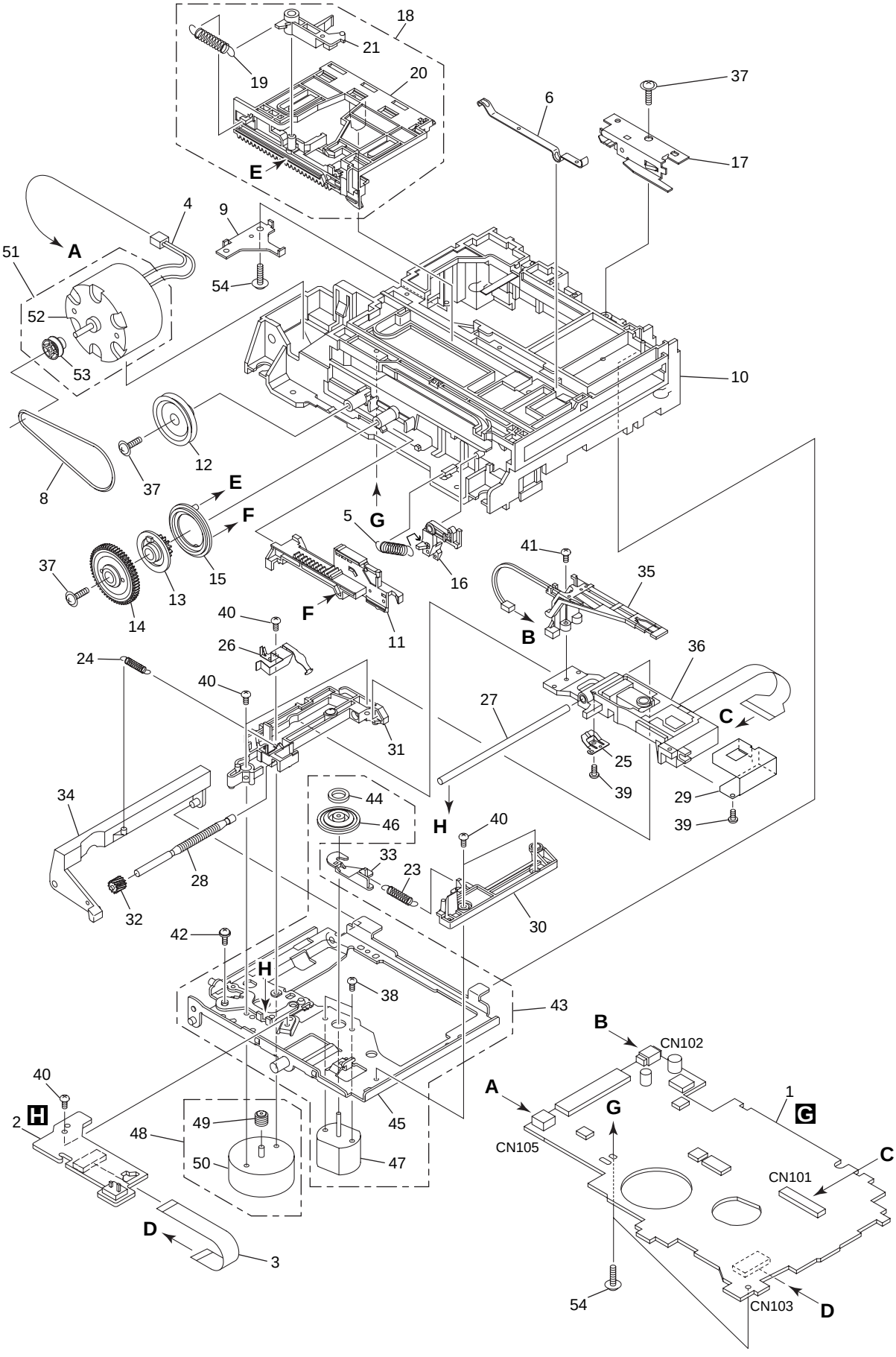
## 2.2 EXTERIOR



## ● EXTERIOR PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | MAIN UNIT | AWU7607 |
| NSP | 2 | RELAY UNIT | AWU7576 |
| NSP | 3 | KEY L UNIT | AWU7577 |
| NSP | 4 | KEY R UNIT | AWU7652 |
| NSP | 5 | BLUE UNIT | AWU7653 |
| NSP | 6 | IC UNIT | AWU7654 |
| NSP | 7 | MD Mechanism | AXA7087 |
| | 8 | Lead Card 30P (J4101) (MAIN CN4101 ↔ MD CORE CN104) | ADD7280 |
| | 9 | Cord with Plug (J4103) (System Cable to CD Receiver) | ADE7065 |
| NSP | 10 | Bottom Chassis MDTC | ANA7108 |
| | 11 | Sub Chassis (MTL) | AND7036 |
| | 12 | Disc Guard (MTL) | ANG7319 |
| | 13 | Shield Case (FE) | ANK7077 |
| | 14 | MD Spring | ABH7189 |
| | 15 | Leg | AEB7090 |
| | 16 | FL Holder (PLS) | AMR7312 |
| | 17 | Illumination Holder | AMR7317 |
| | 18 | MD Flap Holder (PLS) | AMR7318 |
| | 19 | MD Cam (PLS) | AMR7319 |
| | 20 | Float Screw (FE) | RBA1133 |
| | 21 | Float Rubber (Rubber) | REB1328 |
| | 22 | Button MD (PLS) | AAD7582 |
| | 23 | Display Window MD (PLS) | AAK7763 |
| | 24 | Rear Cap MD TC (PLS) | AAK7772 |
| | 25 | FL window MD TC (PLS) | AAK7793 |
| | 26 | Door NS (PLS) | AAK7807 |
| | 27 | Lens MD TC (PLS) | AAK7838 |
| | 28 | FL Cover | AAK7841 |
| | 29 | Illuminate Lens (PLS) | AAK7842 |
| | 30 | Sub Panel MD (PLS) | AAP7069 |
| | 31 | Side Line (PLS) | AAP7074 |
| | 32 | Screw (Steel) | ABA7062 |
| | 33 | Bottom Base CDMD (PLS) | AMA7017 |
| | 34 | Top Panel MD (PLS) | AMB7700 |
| NSP | 35 | Name Label (PAP) MD/ZP | AAL7254 |
| | 36 | Connector Label | ARW7110 |
| | 37 | Screw | BBZ30P080FMC |
| | 38 | Screw | BBZ30P080FZK |
| | 39 | Screw | VBZ30P100FZK |
| | 40 | Caution Label | PRW1018 |

## 2.3 MD MECHANISM



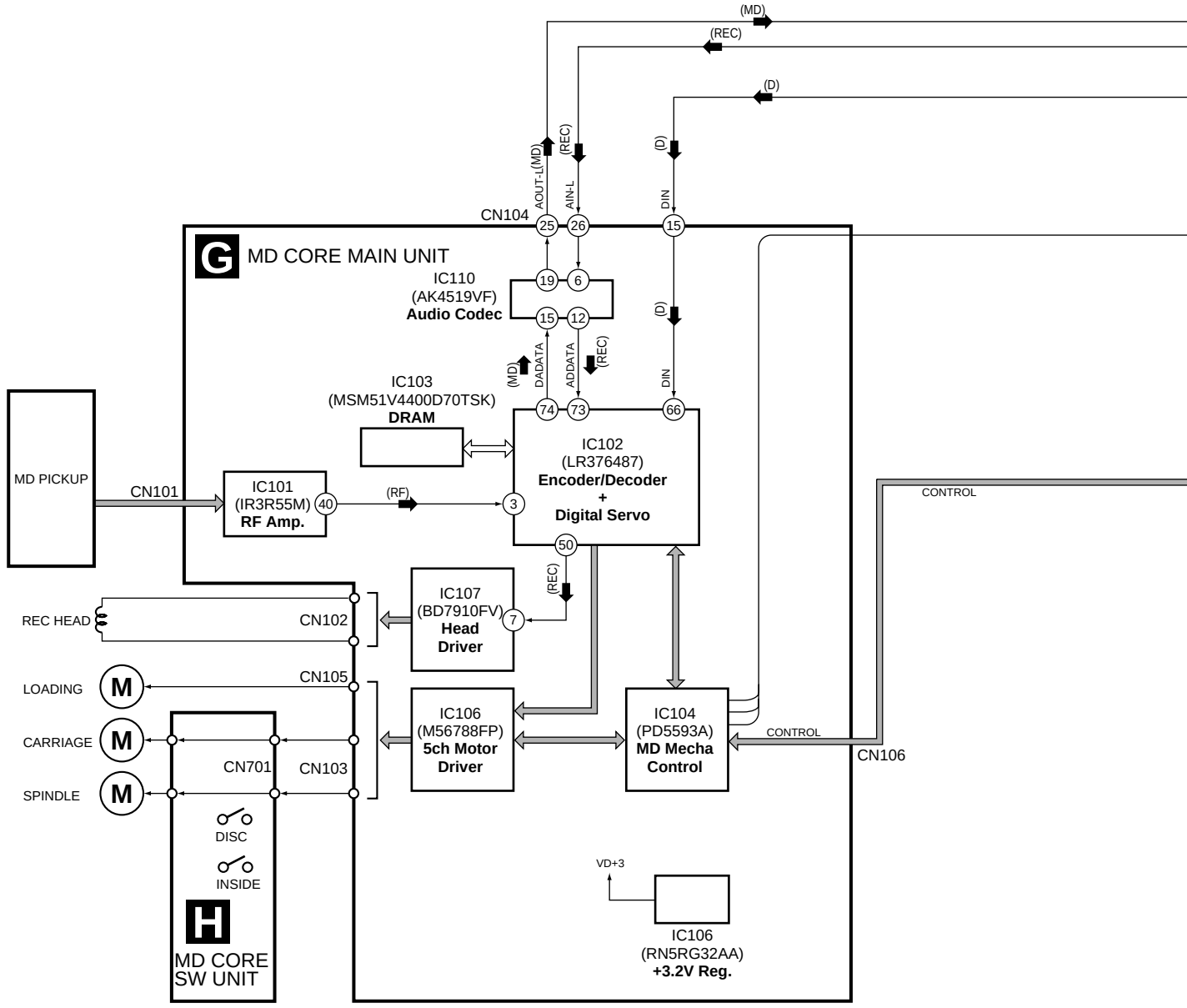
## ● MD MECHANISM PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | MD CORE MAIN UNIT | AWU7591 |
| NSP | 2 | MD CORE SW UNIT | AWU7592 |
| | 3 | Lead Card 7P | RDD1403 |
| | 4 | Lead Wire 2P | RKP1814 |
| | 5 | Lever Spring | RBH1463 |
| | 6 | Clamp Spring | RBK1074 |
| | 7 | • • • • • • • • • • | |
| | 8 | Loading Belt | REB1329 |
| | 9 | Lock Plate | RNE1949 |
| | 10 | Loading Base (ABS) | RNK2323 |
| | 11 | Under Slider (POM) | RNK2314 |
| | 12 | Gear Pulley (POM) | RNK2316 |
| | 13 | Drive Gear (POM) | RNK2317 |
| | 14 | Clutch Gear (POM) | RNK2318 |
| | 15 | Flip Disk (POM) | RNK2319 |
| | 16 | SW Lever | RNK2320 |
| | 17 | Shutter Assy (FE) | RXA1774 |
| NSP | 18 | Upper Slider Assy | RXA1782 |
| | 19 | Eject Spring | RBH1461 |
| | 20 | Upper Slider (POM) | RNK2324 |
| | 21 | Carrier (POM) | RNK2315 |
| | 22 | • • • • • • • • • • | |
| | 23 | Spindle Spring | RBH1460 |
| | 24 | Lifter Spring | RBH1462 |
| | 25 | Screw Guide (SUS) | RBK1072 |
| | 26 | S.H. Spring (SUS) | RBK1073 |
| | 27 | Guide Shaft | RLA1312 |
| | 28 | Lead Screw (SUS) | RLA1311 |
| | 29 | Shield Case (FE) | RNE1950 |
| | 30 | Reference Plate | RNK2306 |

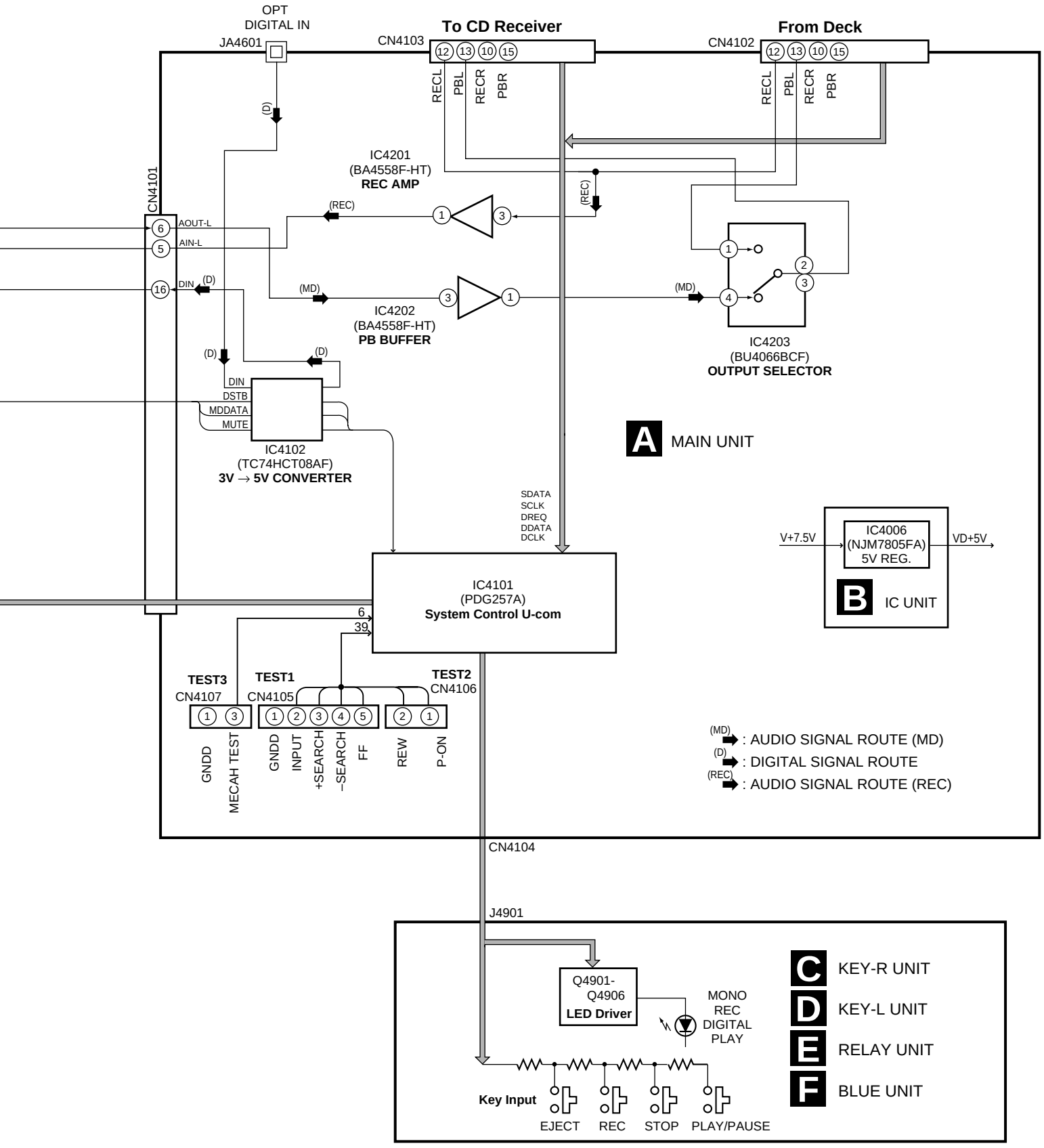
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 31 | S. Holder | RNK2307 |
| | 32 | Worm Wheel | RNK2309 |
| | 33 | Hook (POM) | RNK2310 |
| | 34 | Head Lifter | RNK2311 |
| | 35 | MD Head | RPB1063 |
| | 36 | MD Pick-Up | RWY1019 |
| | 37 | Screw (FE) | Z39-019 |
| | 38 | Screw | JFZ17P020FZK |
| | 39 | Screw | JGZ14P020FMC |
| | 40 | Screw | JGZ17P028FMC |
| | 41 | Screw | JGZ17P040FMC |
| | 42 | Screw | PMB20P040FMC |
| | 43 | Servo Base Assy | REA1283 |
| NSP | 44 | Clamp Magnet | RMF1002 |
| NSP | 45 | Servo Base | RNE1951 |
| NSP | 46 | Disk Table | RNK2305 |
| NSP | 47 | Spindle Motor | RXM1091 |
| | 48 | Carriage Motor Assy | REA1284 |
| | 49 | Worm | RNK2308 |
| NSP | 50 | Carriage Motor | RXM1090 |
| | 51 | Loading Motor Assy | REA1290 |
| | 52 | DC Motor /0.75W | PXM1010 |
| | 53 | CA Pulley | RNK2322 |
| | 54 | Screw | BPZ20P080FMC |

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

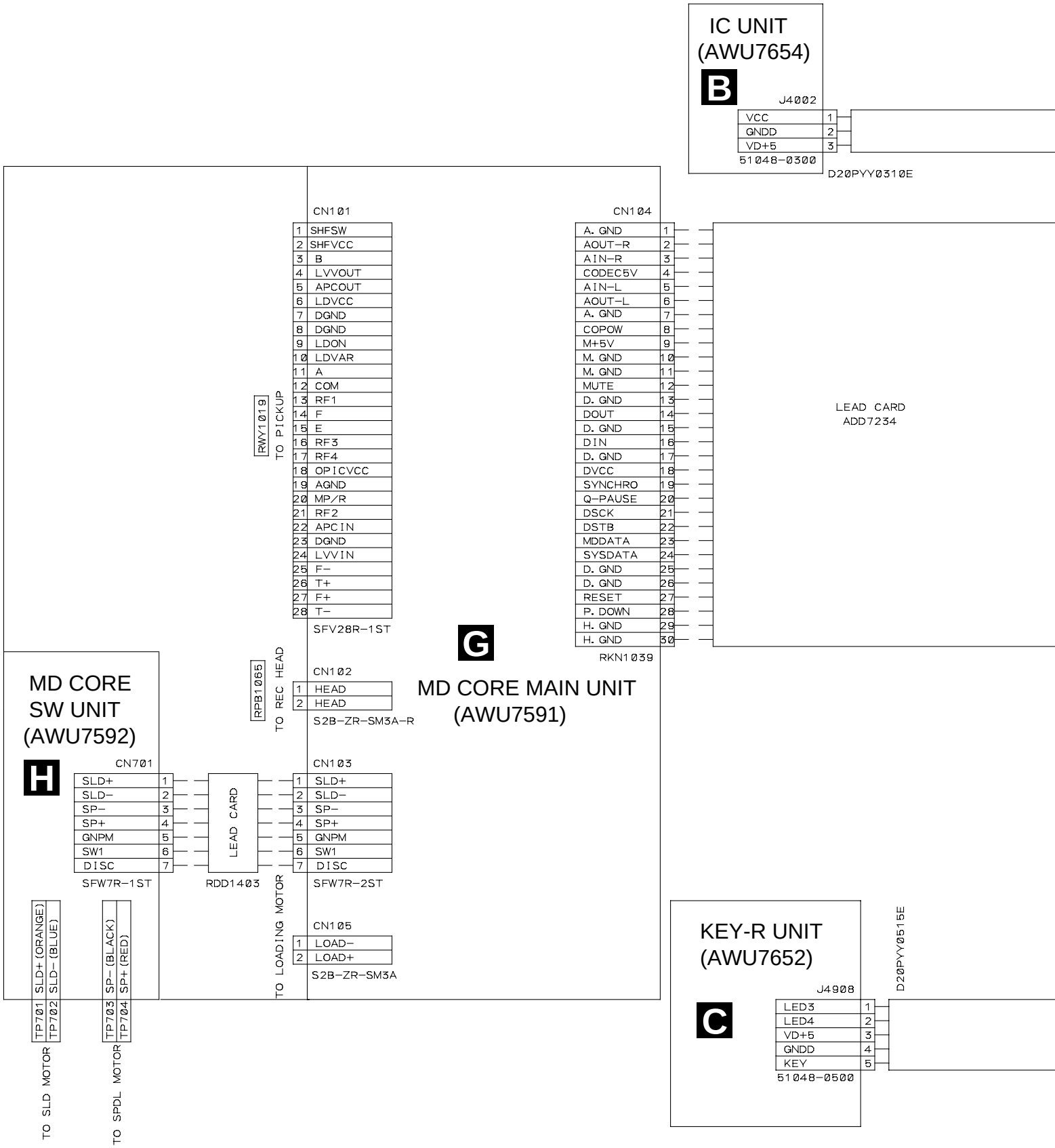
## 3.1 BLOCK DIAGRAM

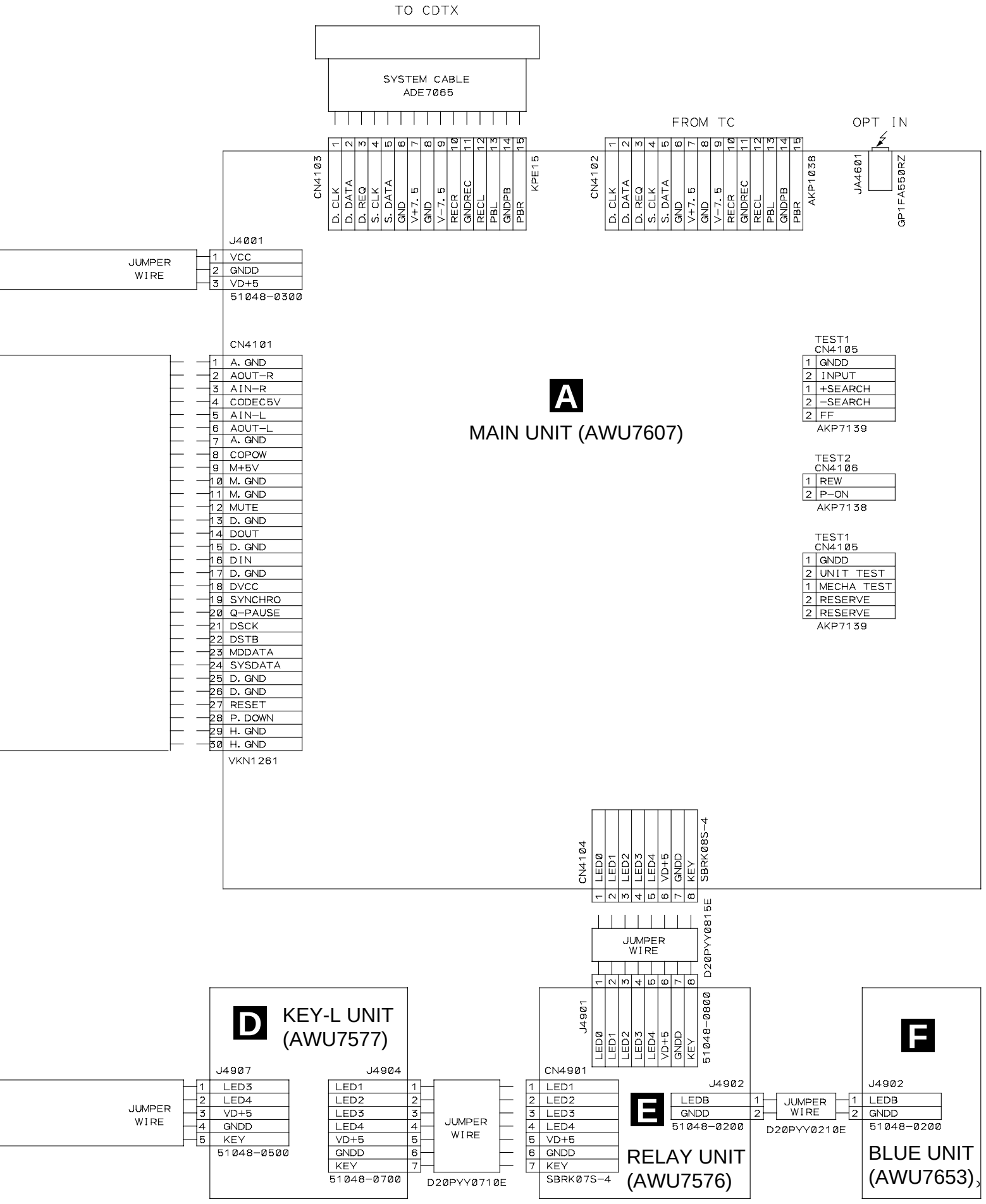


Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".

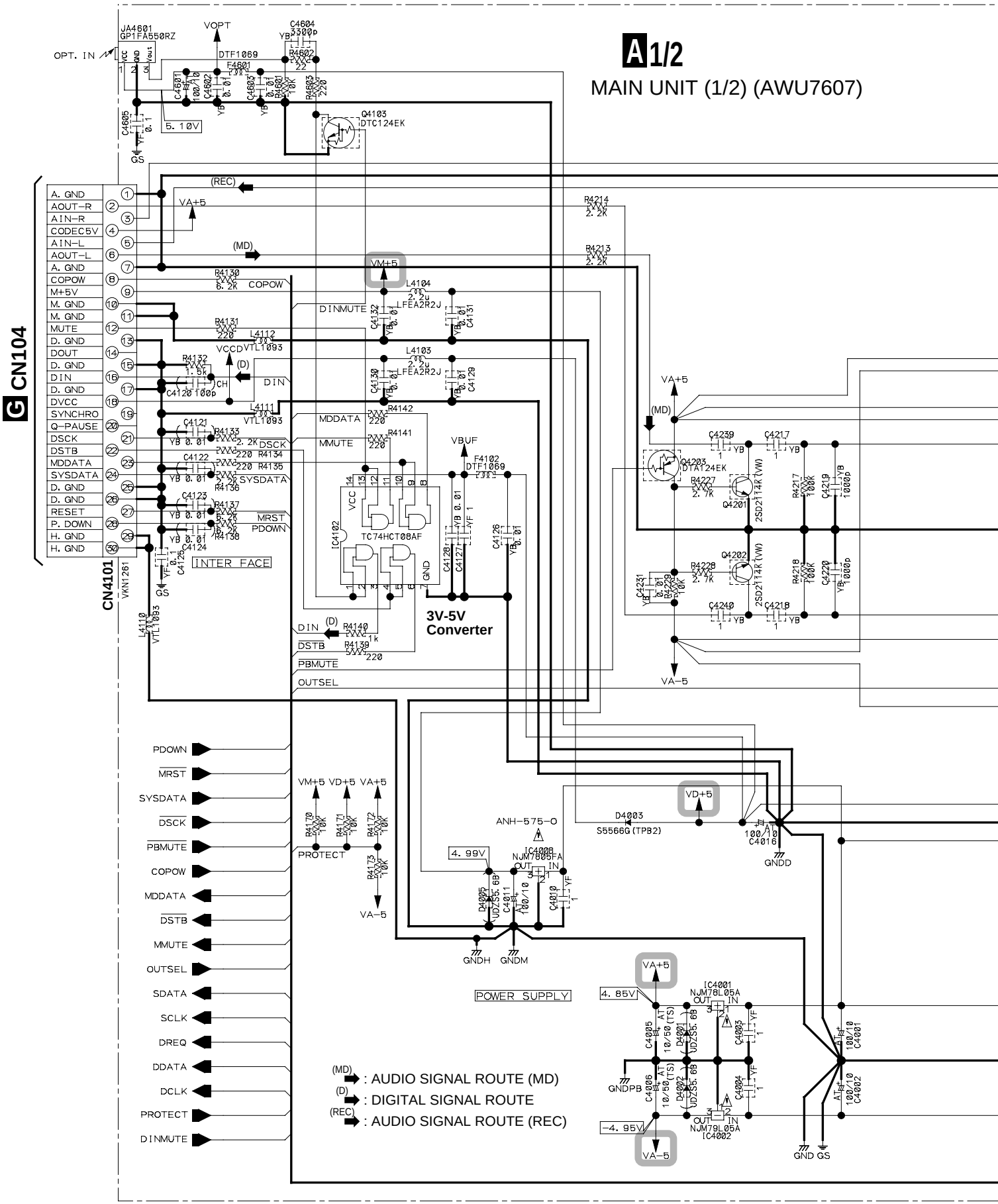


## 3.2 OVERALL CONNECTION DIAGRAM

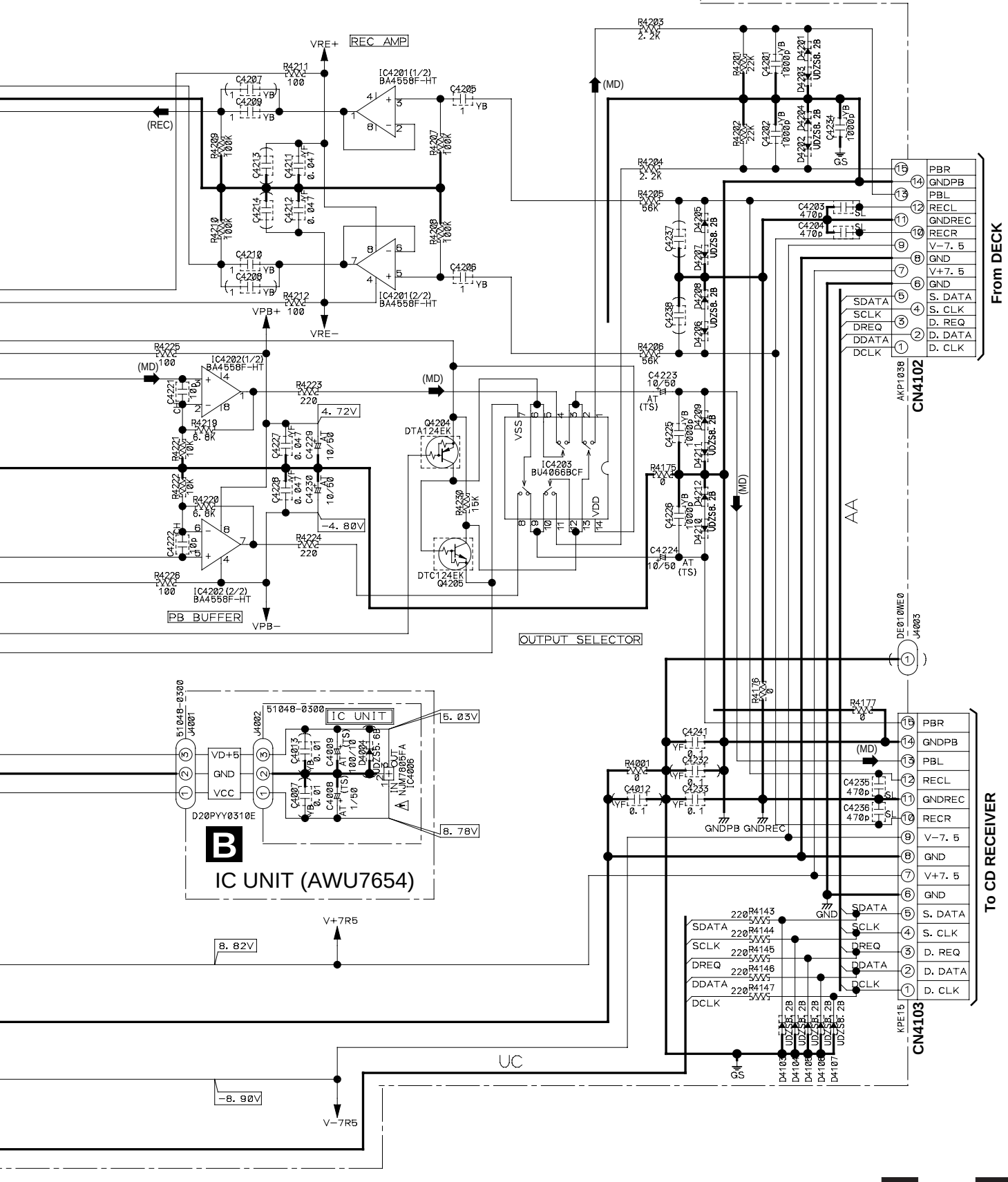



TO CDTX
SYSTEM CABLE
ADE7065
FROM TC
OPT IN
CN4103
KPE15
CN4102
AKP1038
JA4601
GP1FA550RZ
D. CLK
D. DATA
D. REQ
S. CLK
S. DATA
GND
V+7.5
GND
V-7.5
RECR
GNDREC
RECL
PBL
GNDPB
PBR
J4001
JUMPER WIRE
VCC
GNDD
VD+5
51048-0300
CN4101
A. GND
AOUT-R
AIN-R
CODEC5V
AIN-L
AOUT-L
A. GND
COPOW
M+5V
M. GND
M. GND
MUTE
D. GND
DOUT
D. GND
DIN
D. GND
DVCC
SYNCHRO
Q-PAUSE
DSCK
DSTB
MDDATA
SYSDATA
D. GND
D. GND
RESET
P. DOWN
H. GND
H. GND
VKN1261
A
MAIN UNIT (AWU7607)
TEST1
CN4105
GNDD
INPUT
+SEARCH
-SEARCH
FF
AKP7139
TEST2
CN4106
REW
P-ON
AKP7138
TEST1
CN4105
GNDD
UNIT TEST
MECHA TEST
RESERVE
RESERVE
AKP7139
CN4104
LED0
LED1
LED2
LED3
LED4
VD+5
GNDD
KEY
SBRK08S-4
JUMPER WIRE
D20PYY0815E
J4901
51048-0800
D
KEY-L UNIT
(AWU7577)
J4907
J4904
JUMPER WIRE
LED3
LED4
VD+5
GNDD
KEY
51048-0500
LED1
LED2
LED3
LED4
VD+5
GNDD
KEY
51048-0700
JUMPER WIRE
D20PYY0710E
CN4901
LED1
LED2
LED3
LED4
VD+5
GNDD
KEY
SBRK07S-4
E
RELAY UNIT
(AWU7576)
J4902
LEDB
GNDD
51048-0200
JUMPER WIRE
D20PYY0210E
F
J4902
LEDB
GNDD
51048-0200
BLUE UNIT
(AWU7653)

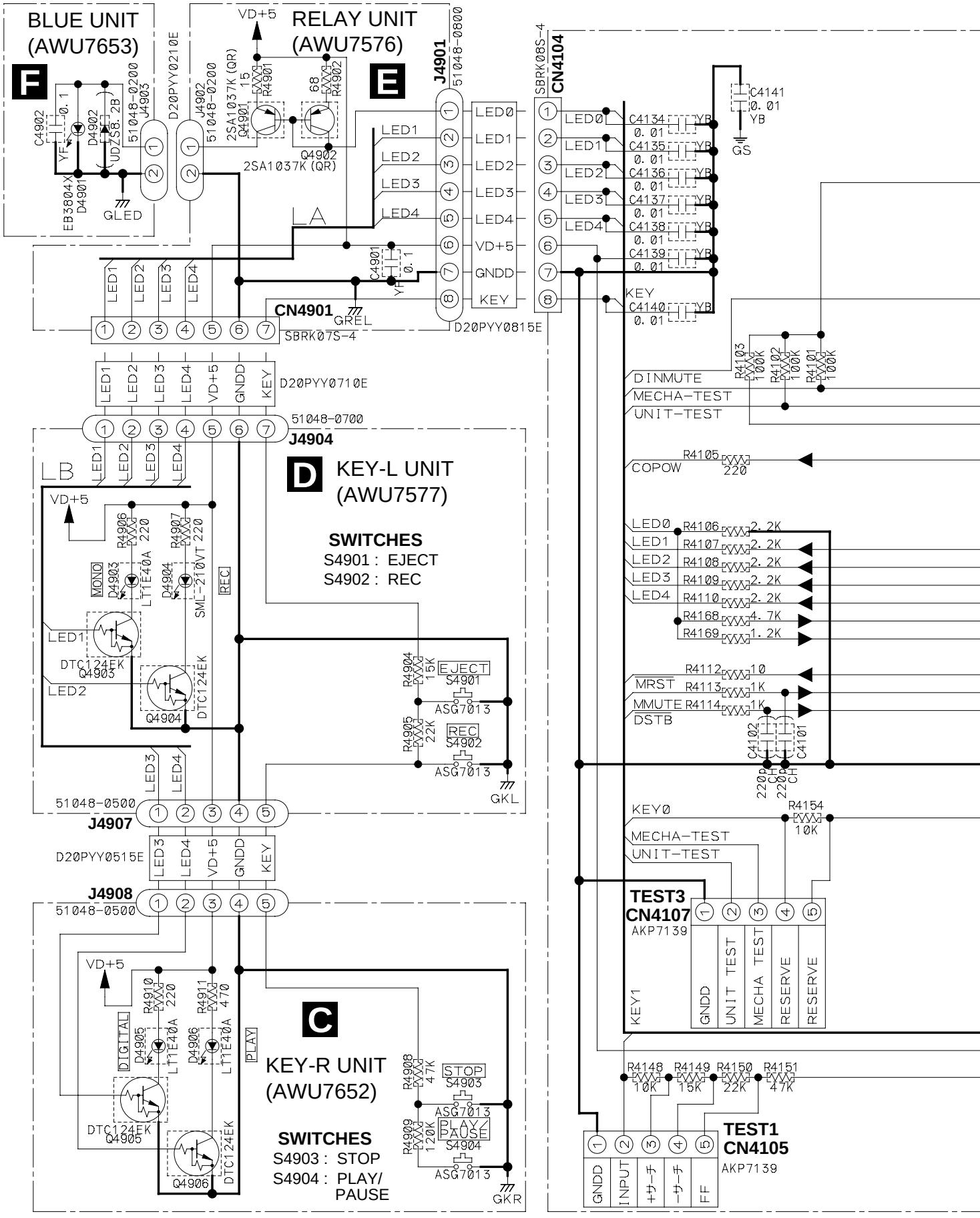
# 3.3 MAIN UNIT (1/2)



: The power supply is shown with the marked box.

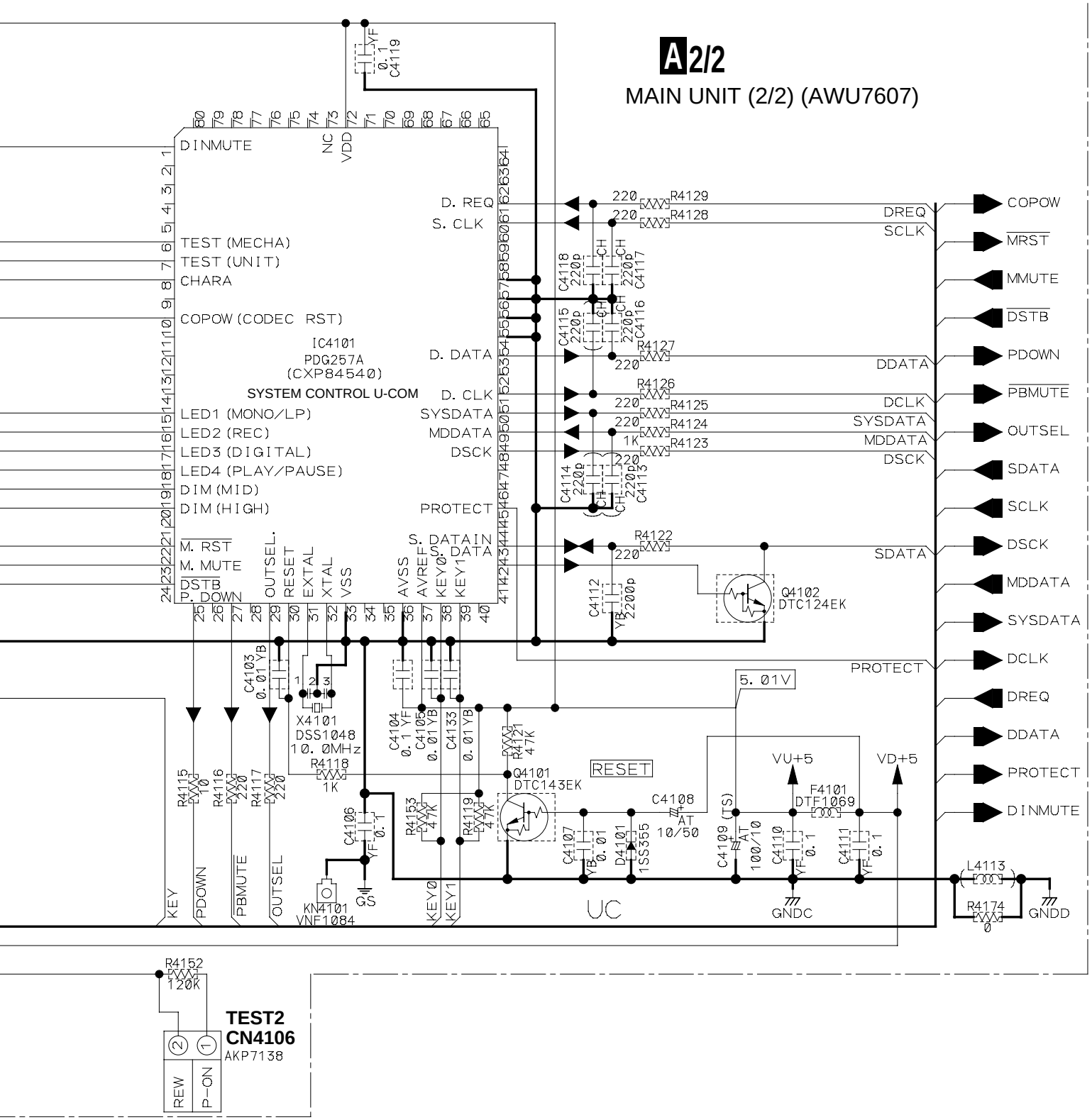


# MJ-NS1
## 3.4 MAIN UNIT (2/2), KEY-R, KEY-L, RELAY and BLUE UNITS

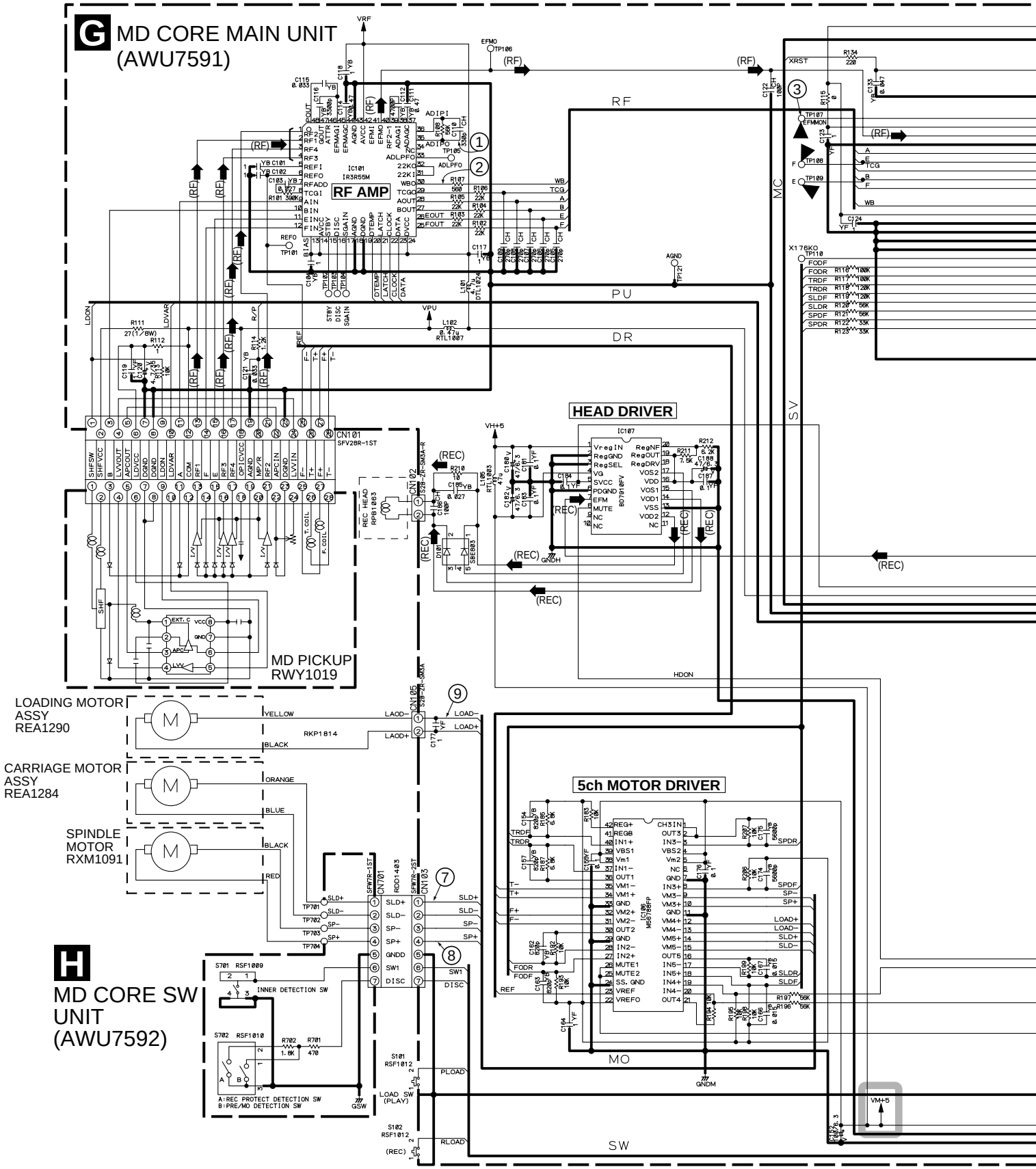


# A2/2

## MAIN UNIT (2/2) (AWU7607)



## 3.5 MD CORE MAIN and MD CORE SW UNITS



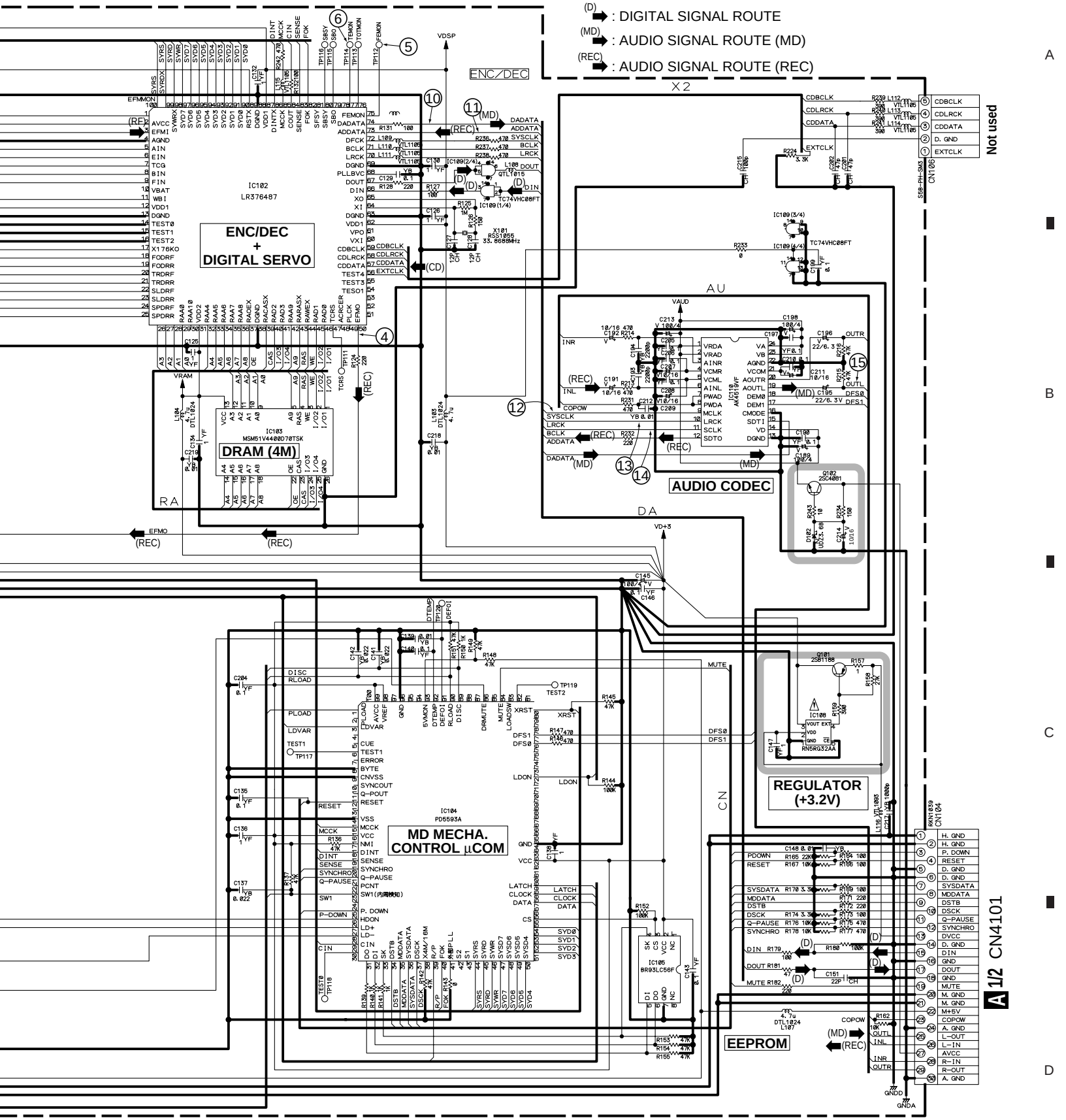
: The power supply is shown with the marked box.

(RF) ➡ : RF SIGNAL ROUTE

(D) ➡ : DIGITAL SIGNAL ROUTE

(MD) ➡ : AUDIO SIGNAL ROUTE (MD)

(REC) ➡ : AUDIO SIGNAL ROUTE (REC)



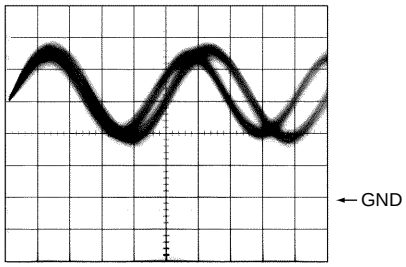
## ■ WAVEFOAM OF EACH PART

Note : The number with ○ indicate the each measuring point number of the schematic diagram.

**G** MD CORE MAIN UNIT

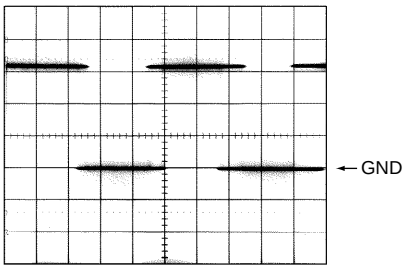
**1** **IC101 - pin 35 (ADIPO)**
MODE: PLAY
DISC : GGF1328 (MMD–212)

V : DC500mV/div. H : 10µsec/div.



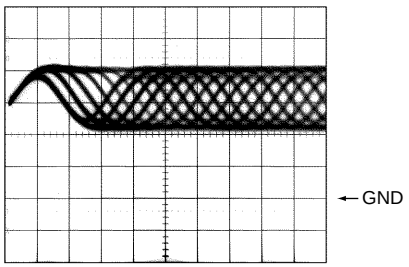

**2** **IC101 - pin 30 (WBO)**
MODE: PLAY
DISC : GGF1328 (MMD–212)

V : DC1V/div. H : 10µsec/div.



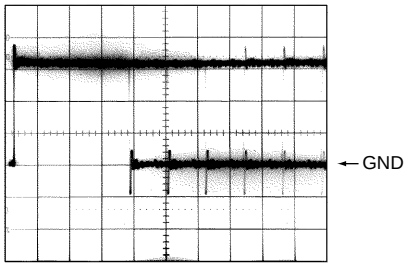

**3** **IC102 - pin 1 (EFM MON)**
MODE: PLAY
DISC : TGYS1 or MMD-110

V : DC500mV/div. H : 0.5msec/div.



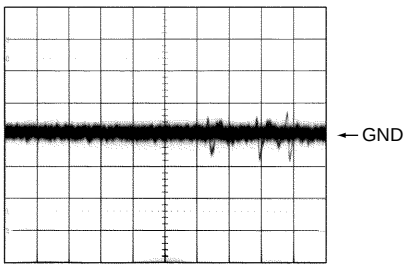

**4** **IC102 - pin 50 (EFMO)**
MODE: REC
DISC : GGF1277 or MMD-317

V : DC1V/div. H : 0.2µsec/div.

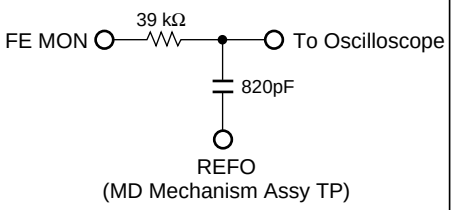



**5** **IC102 - pin 75 (FE MON)**
MODE: PLAY
DISC : TGYS1 or MMD-110

V : DC100mV/div. H : 2msec/div.

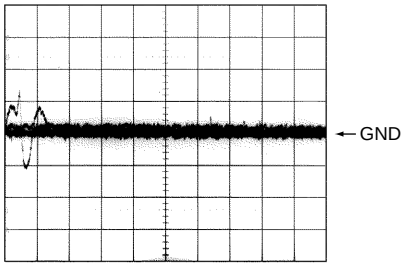



Note : Connect the filter circuit below at measuring.

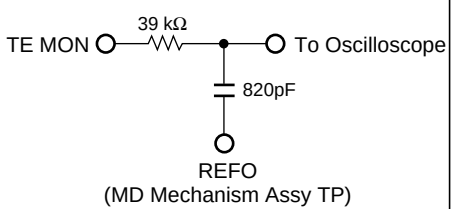



**6** **IC102 - pin 77 (TE MON)**
MODE: PLAY
DISC : TGYS1 or MMD-110

V : DC500mV/div. H : 2msec/div.

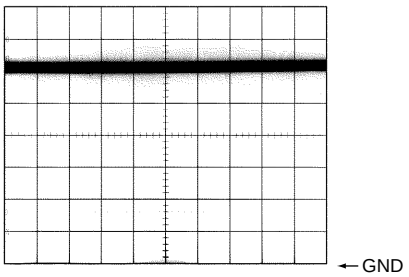



Note : Connect the filter circuit below at measuring.



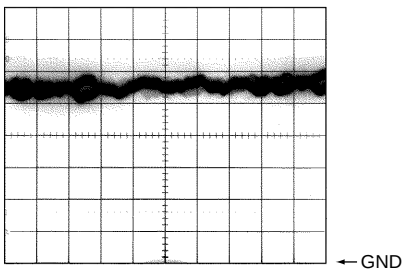

**7** **CN103 - pin 1 (SLD +)**
MODE: PLAY

V : DC500mV/div. H : 2msec/div.



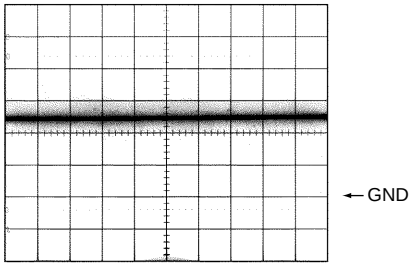

**8** **CN103 - pin 4 (SP +)**
MODE: PLAY

V : DC500mV/div. H : 5msec/div.



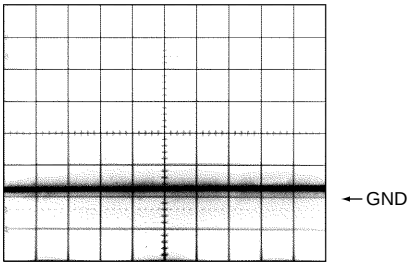

**9** **CN105 - pin 1 (LOAD –)**
MODE: STOP

V : DC1V/div. H : 1msec/div.



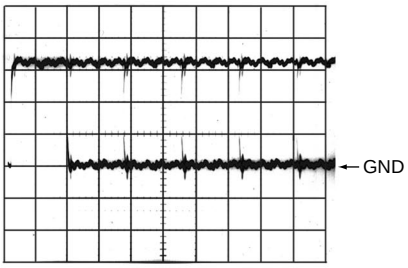

MODE: EJECT

V : DC1V/div. H : 1msec/div.



**10** **IC102 - pin 74 (DADATA)**
MODE: PLAY (1kHz 0dB)
DISC : TGYS1 or MMD-110

V : DC1V/div. H : 0.2µsec/div.

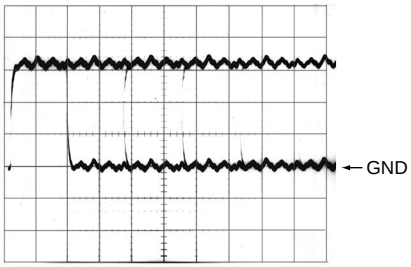



**14** **IC110 - pin 11 (BCLK)**
MODE: PLAY (1kHz 0dB)
DISC : TGYS1 or MMD-110

V : DC1V/div. H : 0.1µsec/div.

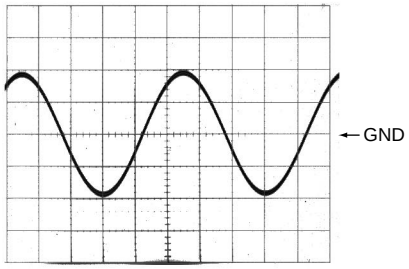
**11** **IC102 - pin 73 (ADDATA)**
MODE: REC (ANALOG)
DISC : GGF1277 or MMD-317

V : DC1V/div. H : 0.2µsec/div.



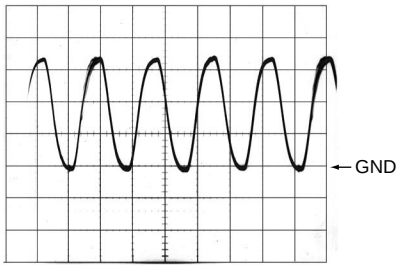

**15** **IC110 - pin 19 (OUTL)**
MODE: PLAY (1kHz 0dB)
DISC : TGYS1 or MMD-110

V : DC500mV/div. H : 0.2msec/div.



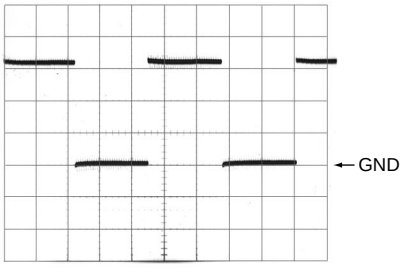

**12** **IC110 - pin 9 (SYSCLK)**
MODE: PLAY (1kHz 0dB)
DISC : TGYS1 or MMD-110

V : DC1V/div. H : 50nsec/div.




**13** **IC110 - pin 10 (LRCK)**
MODE: PLAY (1kHz 0dB)
DISC : TGYS1 or MMD-110

V : DC1V/div. H : 5µsec/div.



## ■ VOLTAGE OF EACH PART

### G MD CORE MAIN UNIT (1kHz 0dB PLAY)

IC101

| Pin No. | Voltage (V) | Pin No. | Voltage (V) |
|---|---|---|---|
| 1 | 0.78 | 25 | 2 |
| 2 | 0.73 | 26 | 0 |
| 3 | 0.77 | 27 | 1.4 |
| 4 | 0.75 | 28 | 1.42 |
| 5 | 1.61 | 29 | 1.4 |
| 6 | 1.61 | 30 | 1.63 |
| 7 | 0.75 | 31 | 1.61 |
| 8 | 1.61 | 32 | 1.61 |
| 9 | 1.61 | 33 | 0 |
| 10 | 1.61 | 34 | 0 |
| 11 | 1.61 | 35 | 0 |
| 12 | 1.61 | 36 | 1.62 |
| 13 | 3.19 | 37 | 0.59 |
| 14 | 3.19 | 38 | 1.61 |
| 15 | 0 | 39 | 1.61 |
| 16 | 0 | 40 | 1.61 |
| 17 | 3.19 | 41 | 1.61 |
| 18 | 0 | 42 | 3.19 |
| 19 | 0 | 43 | 0 |
| 20 | 1.5 | 44 | 1.08 |
| 21 | 3.2 | 45 | 1.61 |
| 22 | 0 | 46 | 1.61 |
| 23 | 0 | 47 | 0 |
| 24 | 3.19 | 48 | 0.74 |

IC102

| Pin No. | Voltage (V) | Pin No. | Voltage (V) |
|---|---|---|---|
| 1 | 1.53 | 51 | 1.59 |
| 2 | 3.18 | 52 | 0 |
| 3 | 1.65 | 53 | 0 |
| 4 | 0 | 54 | 1.59 |
| 5 | 1.42 | 55 | 1.8 |
| 6 | 0 | 56 | 0 |
| 7 | 1.59 | 57 | 0 |
| 8 | 1.41 | 58 | 0 |
| 9 | 1.97 | 59 | 0 |
| 10 | 1.39 | 60 | 0 |
| 11 | 1.64 | 61 | 0.56 |
| 12 | 3.18 | 62 | 3.18 |
| 13 | 0 | 63 | 0 |
| 14 | 0 | 64 | 1.5 |
| 15 | 0 | 65 | 1.5 |
| 16 | 0 | 66 | 3.2 |
| 17 | 1.69 | 67 | 1.6 |
| 18 | 1.52 | 68 | 0.96 |
| 19 | 1.7 | 69 | 0 |
| 20 | 1.47 | 70 | 1.6 |
| 21 | 1.47 | 71 | 1.6 |
| 22 | 1.65 | 72 | 1.48 |
| 23 | 1.54 | 73 | 0 |
| 24 | 1.69 | 74 | 0 |
| 25 | 1.51 | 75 | 1.68 |
| 26 | 0.82 | 76 | 1.82 |
| 27 | 2 | 77 | 1.59 |
| 28 | 2 | 78 | 0.35 |
| 29 | 1.81 | 79 | 0.02 |
| 30 | 1.4 | 80 | 3.2 |
| 31 | 0.82 | 81 | 3.2 |
| 32 | 1.67 | 82 | 0.02 |
| 33 | 1.67 | 83 | 0.03 |
| 34 | 1.67 | 84 | 1.9 |
| 35 | 2.86 | 85 | 1.56 |
| 36 | 1.32 | 86 | 3.1 |
| 37 | 2.23 | 87 | 3.2 |
| 38 | 0 | 88 | 0 |
| 39 | 2.4 | 89 | 3.19 |
| 40 | 1.2 | 90 | 0.5 |
| 41 | 1.5 | 91 | 0.5 |
| 42 | 0 | 92 | 0.5 |
| 43 | 2 | 93 | 0.5 |
| 44 | 3 | 94 | 0.9 |
| 45 | 1.2 | 95 | 0.5 |
| 46 | 1.2 | 96 | 0.5 |
| 47 | 0.02 | 97 | 0.5 |
| 48 | 3.04 | 98 | 0.8 |
| 49 | 1.57 | 99 | 3.18 |
| 50 | 0.05 | 100 | 0.06 |

IC103

| Pin No. | Voltage (V) |
|---|---|
| 1 | 1.2 |
| 2 | 1.2 |
| 3 | 3 |
| 4 | 2 |
| 5 | 1.45 |
| 6 | - |
| 7 | - |
| 8 | - |
| 9 | 1.80 |
| 10 | 0.8 |
| 11 | 2.36 |
| 12 | 1.21 |
| 13 | 3.18 |
| 14 | 1.21 |
| 15 | 2.45 |
| 16 | 1.26 |
| 17 | 1.65 |
| 18 | 1.32 |
| 19 | - |
| 20 | - |
| 21 | - |
| 22 | 2.23 |
| 23 | 2.4 |
| 24 | 1.2 |
| 25 | 1.2 |
| 26 | 0 |

IC104

| Pin No. | Voltage (V) | Pin No. | Voltage (V) |
|---|---|---|---|
| 1 | 0 | 51 | 1.2 |
| 2 | 0 | 52 | 1.2 |
| 3 | 0.22 | 53 | 1.0 |
| 4 | 3.18 | 54 | 1.1 |
| 5 | 1.29 | 55 | 0 |
| 6 | 0 | 56 | 0 |
| 7 | 0 | 57 | 0 |
| 8 | 0 | 58 | 0 |
| 9 | 0 | 59 | 3.2 |
| 10 | 0 | 60 | 0 |
| 11 | 0 | 61 | 0 |
| 12 | 2.83 | 62 | 3.2 |
| 13 | 1.53 | 63 | 0 |
| 14 | 0 | 64 | 0 |
| 15 | 1.57 | 65 | 3.2 |
| 16 | 3.2 | 66 | 0 |
| 17 | 3.19 | 67 | 0 |
| 18 | 3.1 | 68 | 0 |
| 19 | 0 | 69 | 0 |
| 20 | 0 | 70 | 0 |
| 21 | 0 | 71 | 0 |
| 22 | 3.18 | 72 | 3.1 |
| 23 | 3.2 | 73 | 3.2 |
| 24 | 0 | 74 | 0 |
| 25 | 2.92 | 75 | 0 |
| 26 | 3.19 | 76 | 3.2 |
| 27 | 0 | 77 | 0 |
| 28 | 0 | 78 | 0 |
| 29 | 1.5 | 79 | 0 |
| 30 | 0 | 80 | 3.2 |
| 31 | 0 | 81 | 0 |
| 32 | 0 | 82 | 0 |
| 33 | 0 | 83 | 0 |
| 34 | 0 | 84 | 3.19 |
| 35 | 1.17 | 85 | 0 |
| 36 | 0 | 86 | 3.18 |
| 37 | 2.27 | 87 | 3.2 |
| 38 | 0 | 88 | 0 |
| 39 | 3.18 | 89 | 1.03 |
| 40 | 0 | 90 | 3.17 |
| 41 | 0 | 91 | 0 |
| 42 | 3.2 | 92 | 1.49 |
| 43 | 0 | 93 | 2.48 |
| 44 | 0 | 94 | 0 |
| 45 | 3.18 | 95 | 0 |
| 46 | 3.19 | 96 | 0 |
| 47 | 0.51 | 97 | 0 |
| 48 | 0.4 | 98 | 3.2 |
| 49 | 1.3 | 99 | 3.2 |
| 50 | 1.1 | 100 | 0 |

IC105

| Pin No. | Voltage (V) |
|---|---|
| 1 | 0 |
| 2 | 3.2 |
| 3 | 0 |
| 4 | 0 |
| 5 | 0 |
| 6 | 0 |
| 7 | 0 |
| 8 | 0 |

IC108

| Pin No. | Voltage (V) |
|---|---|
| 1 | 0 |
| 2 | 4.19 |
| 3 | 3.21 |
| 4 | 2.81 |
| 5 | 0 |

IC109

| Pin No. | Voltage (V) |
|---|---|
| 1 | 1.4 |
| 2 | 1.4 |
| 3 | 1.4 |
| 4 | 1.58 |
| 5 | 1.58 |
| 6 | 1.56 |
| 7 | 0 |
| 8 | 0 |
| 9 | 0 |
| 10 | 0 |
| 11 | 0 |
| 12 | 0 |
| 13 | 0 |
| 14 | 3.2 |

IC106

| Pin No. | Voltage (V) | Pin No. | Voltage (V) |
|---|---|---|---|
| 1 | 1.69 | 22 | 1.61 |
| 2 | 1.69 | 23 | 1.61 |
| 3 | 1.67 | 24 | 0 |
| 4 | 4.99 | 25 | 3.17 |
| 5 | 5.0 | 26 | 3.17 |
| 6 | 0 | 27 | 1.61 |
| 7 | 0 | 28 | 1.62 |
| 8 | 1.63 | 29 | 0 |
| 9 | 2.14 | 30 | 1.57 |
| 10 | 2.15 | 31 | 2.54 |
| 11 | 0 | 32 | 2.38 |
| 12 | 2.48 | 33 | 0 |
| 13 | 2.47 | 34 | 2.51 |
| 14 | 2.55 | 35 | 2.46 |
| 15 | 2.41 | 36 | 1.62 |
| 16 | 1.63 | 37 | 1.61 |
| 17 | 1.61 | 38 | 4.99 |
| 18 | 1.61 | 39 | 4.99 |
| 19 | 1.36 | 40 | 1.61 |
| 20 | 1.36 | 41 | 4.86 |
| 21 | 1.61 | 42 | 1.6 |

IC107

| Pin No. | Voltage (V) |
|---|---|
| 1 | 4.98 |
| 2 | 0 |
| 3 | 0 |
| 4 | 4.99 |
| 5 | 3.2 |
| 6 | 0 |
| 7 | 0.03 |
| 8 | 3.18 |
| 9 | 0 |
| 10 | 0 |
| 11 | 0 |
| 12 | 0.73 |
| 13 | 0 |
| 14 | 0.9 |
| 15 | 0.85 |
| 16 | 2.94 |
| 17 | 0.85 |
| 18 | 4.94 |
| 19 | 2.94 |
| 20 | 1.33 |

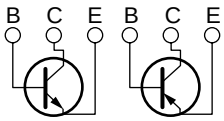
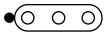
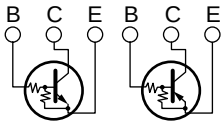
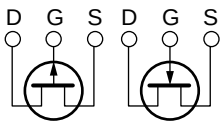
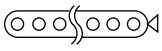
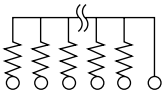
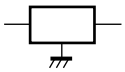
IC110

| Pin No. | Voltage (V) |
|---|---|
| 1 | 3.12 |
| 2 | 3.12 |
| 3 | 1.38 |
| 4 | 1.39 |
| 5 | 1.39 |
| 6 | 1.38 |
| 7 | 2.84 |
| 8 | 2.84 |
| 9 | 1.55 |
| 10 | 1.58 |
| 11 | 1.56 |
| 12 | 0.95 |
| 13 | 0 |
| 14 | 3.12 |
| 15 | 0.98 |
| 16 | 0 |
| 17 | 0 |
| 18 | 3.18 |
| 19 | 1.38 |
| 20 | 1.38 |
| 21 | 0 |
| 22 | 0 |
| 23 | 3.12 |
| 24 | 3.12 |

# 4. PCB CONNECTION DIAGRAM

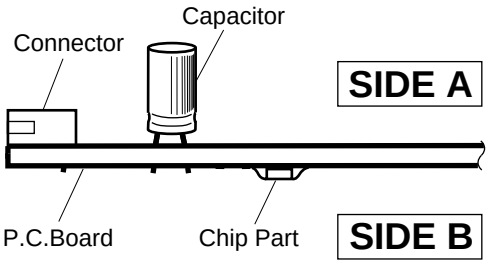
**NOTE FOR PCB DIAGRAMS:**

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

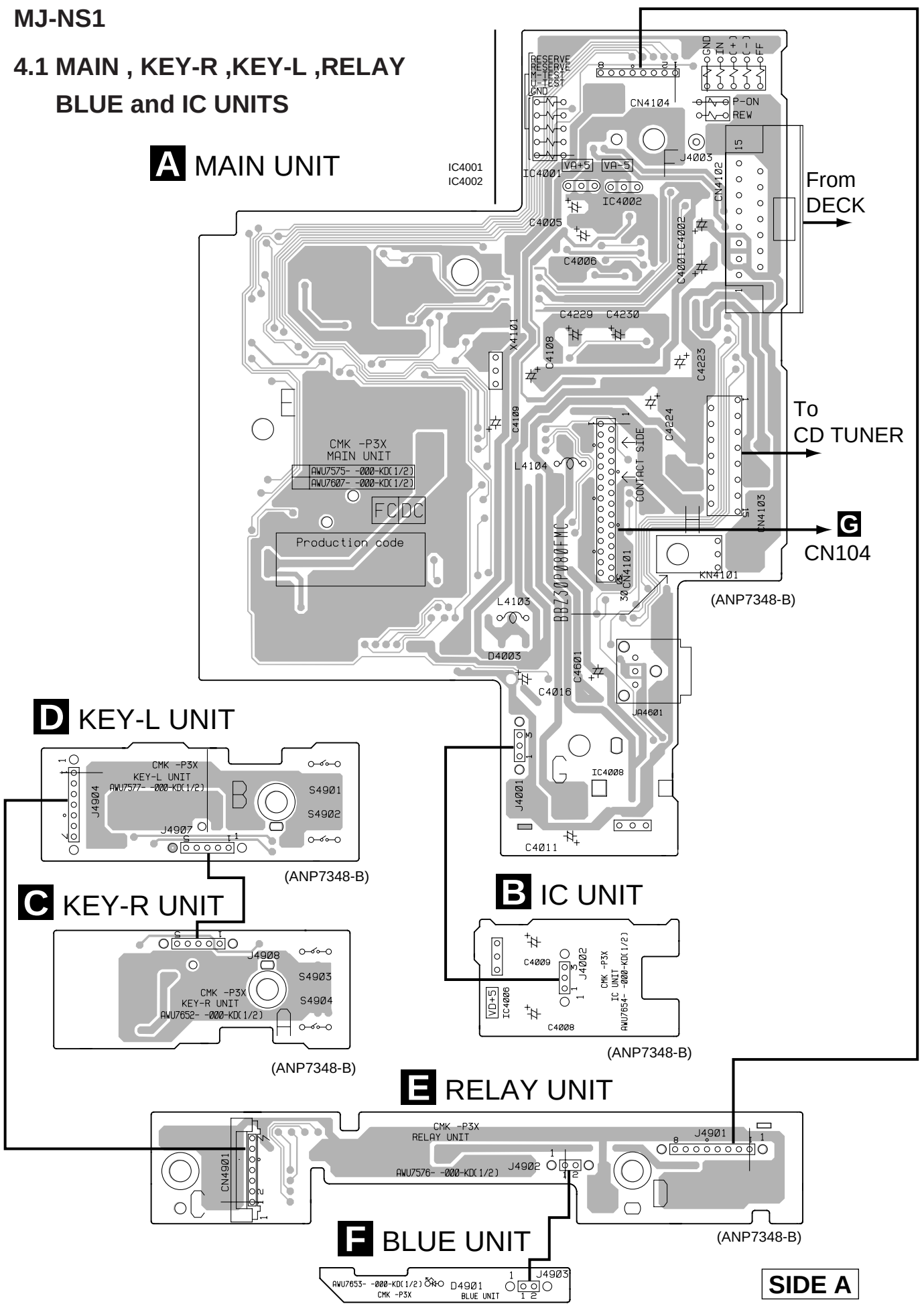
| Symbol in PCB Diagrams | Symbol in Schematic Diagrams | Part Name |
|---|---|---|
| |  | Transistor |
|  |  | Transistor with resistor |
| |  | Field effect transistor |
|  |  | Resistor array |
| |  | 3-terminal regulator |

3. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.

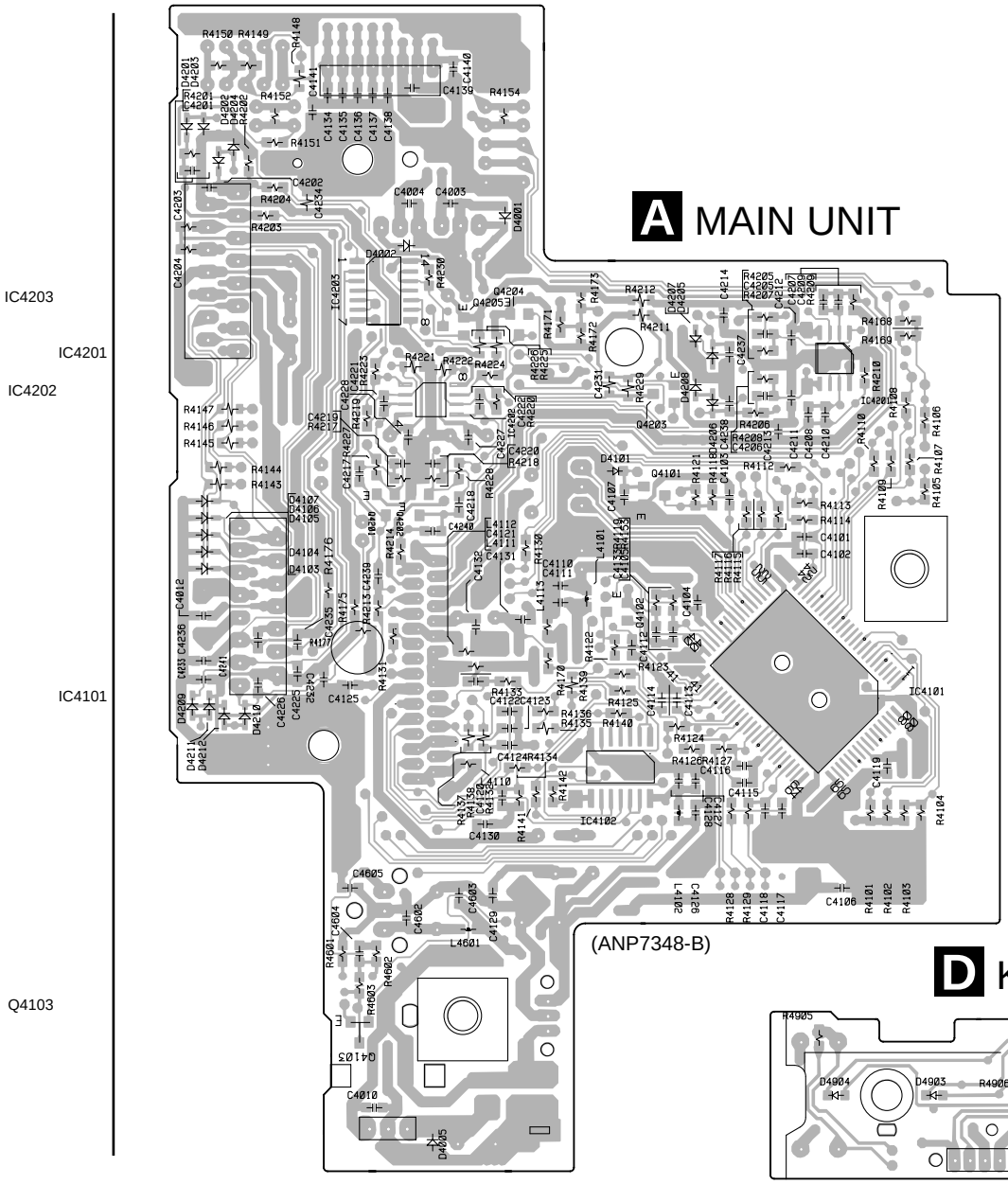
4. Viewpoint of PCB diagrams



## 4.1 MAIN , KEY-R ,KEY-L ,RELAY BLUE and IC UNITS

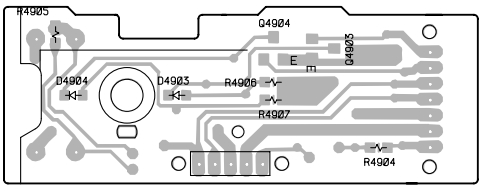


## A MAIN UNIT



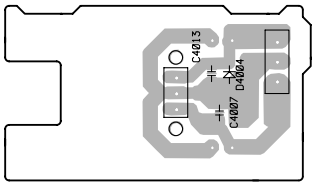

(ANP7348-B)

## D KEY-L UNIT



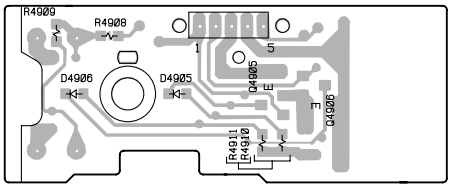
(ANP7348-B)

## B IC UNIT



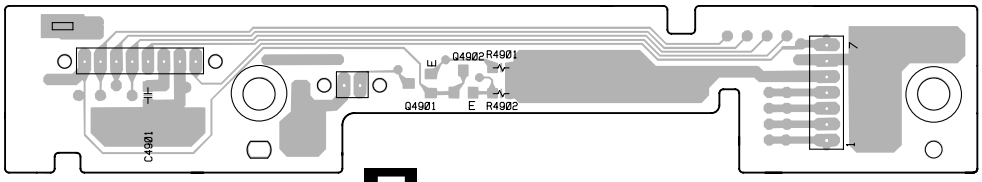
(ANP7348-B)

## C KEY-R UNIT



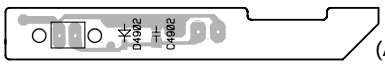
(ANP7348-B)

## E RELAY UNIT



(ANP7348-B)

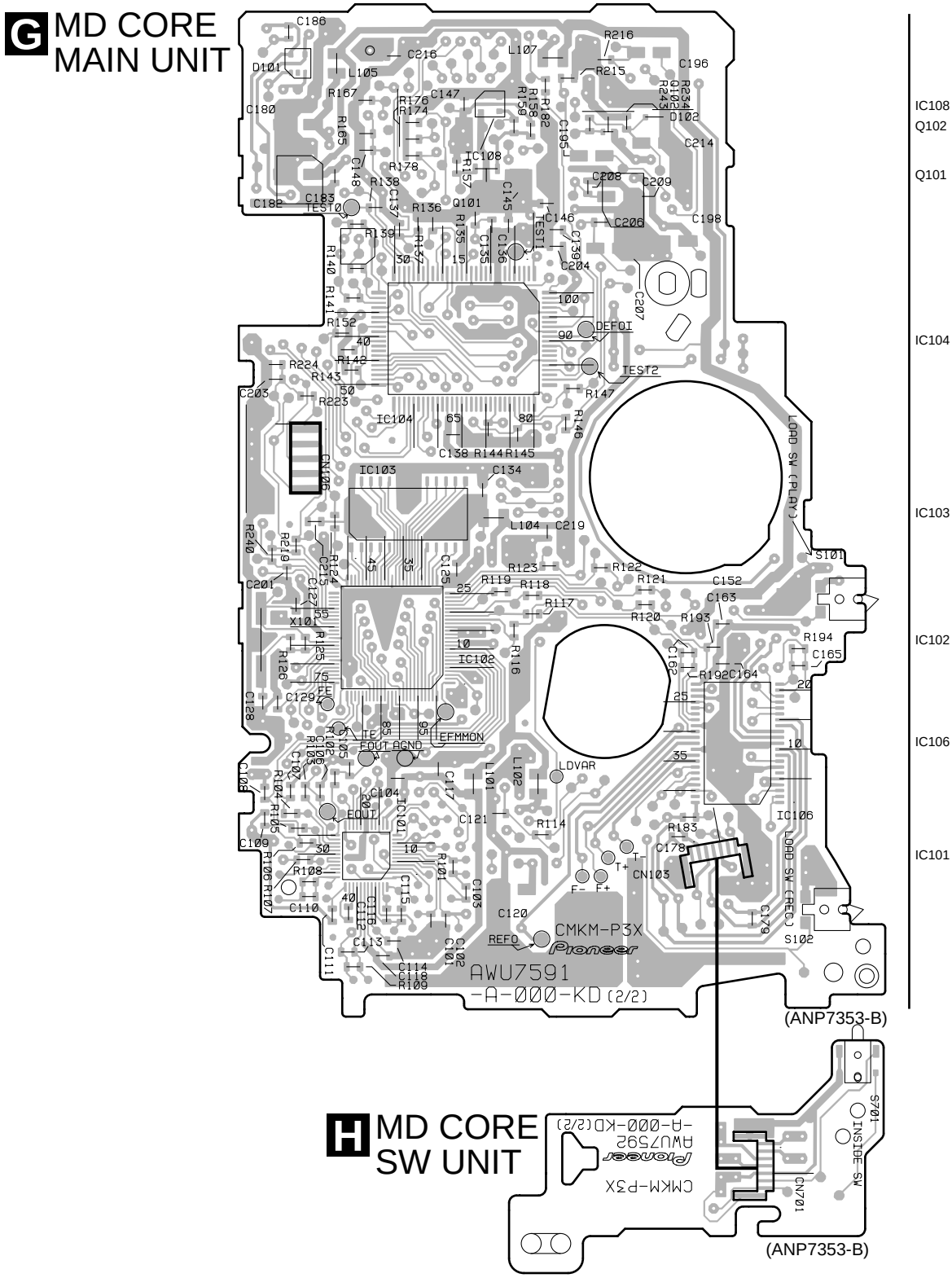
## F BLUE UNIT

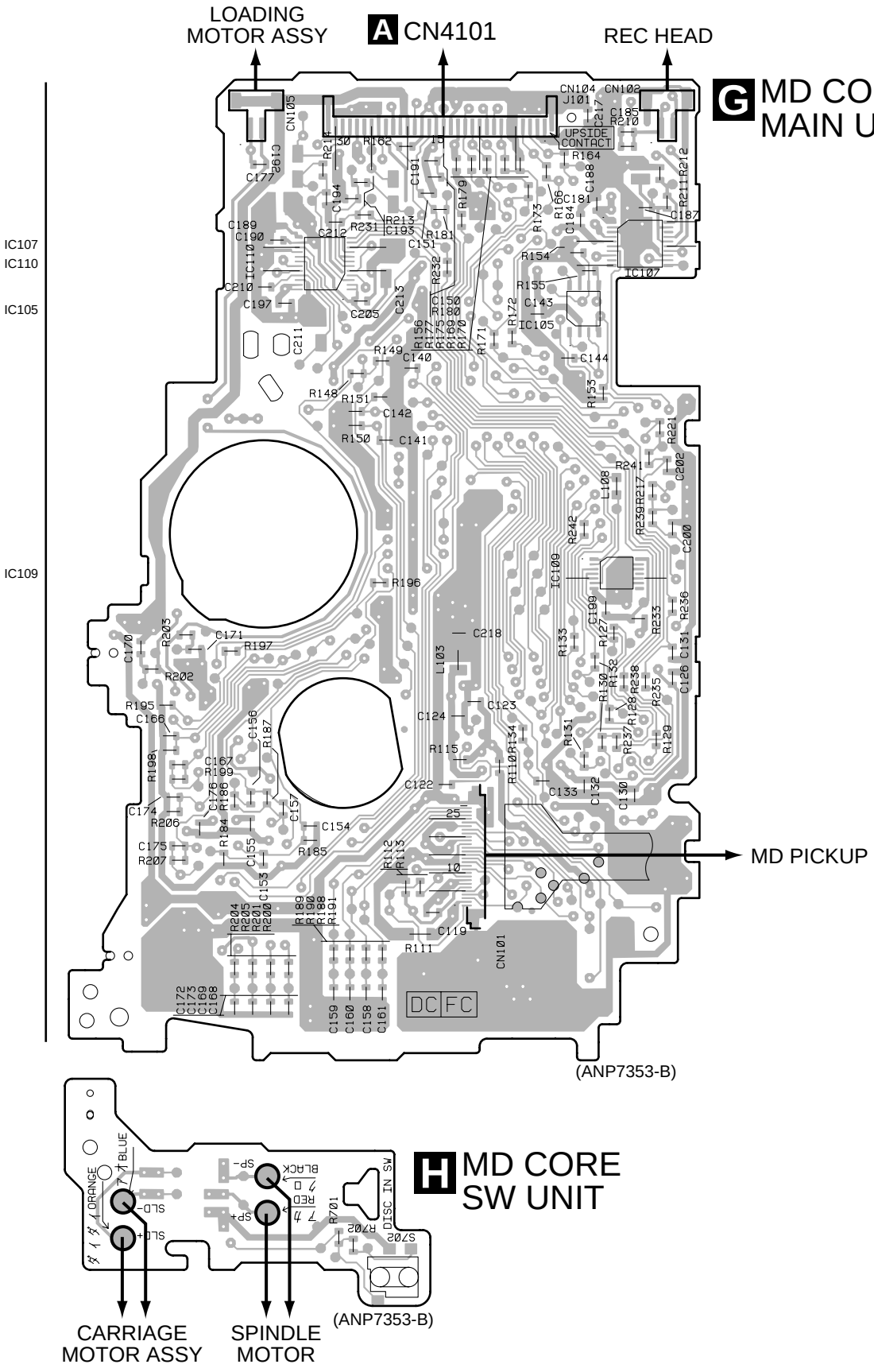


(ANP7348-B)

**SIDE B**

## 4.2 MD CORE MAIN and MD CORE SW UNITS




LOADING MOTOR ASSY
A CN4101
REC HEAD
G MD CORE MAIN UNIT
IC107
IC110
IC105
IC109
MD PICKUP
(ANP7353-B)
H MD CORE SW UNIT
CARRIAGE MOTOR ASSY
SPINDLE MOTOR
(ANP7353-B)
SIDE B

# 5. PCB PARTS LIST

*NOTES:* ●*Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
●*The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
●*When ordering resistors, first convert resistance values into code form as shown in the following examples.*
*Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).*
*560 Ω → $56 \times 10^1$ → 561 ..... RD1/4PU 5 6 1 J*
*47k Ω → $47 \times 10^3$ → 473 ..... RD1/4PU 4 7 3 J*
*0.5 Ω → R50 ..... RN2H R 5 0 K*
*1 Ω → 1R0 ..... RS1P 1 R 0 K*
*Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).*
*5.62k Ω → $562 \times 10^1$ → 5621 ..... RN1/4PC 5 6 2 1 F*

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **LIST OF ASSEMBLIES** | | | |
| NSP | | MD MAIN ASSY | AWM7522 |
| | | ├MAIN UNIT | AWU7607 |
| NSP | | ├RELAY UNIT | AWU7576 |
| NSP | | ├KEY L UNIT | AWU7577 |
| NSP | | ├KEY R UNIT | AWU7652 |
| NSP | | ├BLUE UNIT | AWU7653 |
| NSP | | └IC UNIT | AWU7654 |
| | | MD CORE UNIT | AWM7516 |
| | | ├MD CORE MAIN UNIT | AWU7591 |
| NSP | | └MD CORE SW UNIT | AWU7592 |

## A MAIN ASSY

### SEMICONDUCTORS

| | | | |
|---|---|---|---|
| | | IC4201,IC4202 | BA4558F-HT |
| | | IC4203 | BU4066BCF |
| ⚠ | | IC4008 | NJM7805FA |
| ⚠ | | IC4001 | NJM78L05A |
| ⚠ | | IC4002 | NJM79L05A |
| | | IC4101 | PDG257A |
| | | IC4102 | TC74HCT08AF |
| | | Q4201,Q4202 | 2SD2114K |
| | | Q4203,Q4204 | DTA124EK |
| | | Q4102,Q4103,Q4205 | DTC124EK |
| | | Q4101 | DTC143EK |
| | | D4101 | 1SS355 |
| | | D4003 | S5566G(TPB2) |
| | | D4103-D4107,D4201-D4212 | UDZS8.2B |

### COILS AND FILTERS

| | | | |
|---|---|---|---|
| | | F4101,F4102,F4601 | DTF1069 |
| | | L4103,L4104 | LFEA2R2J |
| | | L4110-L4112 | VTL1093 |

### CAPACITORS

| | | | |
|---|---|---|---|
| | | C4221,C4222 | CCSQCH100D50 |
| | | C4115-C4118 | CCSQCH221J50 |
| | | C4203,C4204,C4235,C4236 | CCSQSL471J50 |
| | | C4005,C4006,C4108,C4223,C4224 | CEAT100M50 |
| | | C4229,C4230 | CEAT100M50 |
| | | C4001,C4002,C4011,C4016,C4109 | CEAT101M10 |
| | | C4601 | CEAT101M10 |
| | | C4201,C4202,C4219,C4220 | CKSQYB102K50 |
| | | C4225,C4226,C4234 | CKSQYB102K50 |
| | | C4103,C4105,C4107,C4126 | CKSQYB103K50 |
| | | C4128-C4141,C4231,C4602,C4603 | CKSQYB103K50 |
| | | C4205,C4206,C4209,C4210 | CKSQYB105K10 |
| | | C4217,C4218,C4239,C4240 | CKSQYB105K10 |
| | | C4112 | CKSQYB222K50 |
| | | C4604 | CKSQYB332K50 |
| | | C4104,C4106,C4110,C4111,C4119 | CKSQYF104Z25 |
| | | C4125,C4233,C4241,C4605 | CKSQYF104Z25 |
| | | C4003,C4004,C4010,C4127 | CKSQYF105Z16 |
| | | C4211,C4212,C4227,C4228 | CKSQYF473Z25 |

### RESISTORS

| | | | |
|---|---|---|---|
| | | All Resistors | RS1/10S□□□J |

### OTHERS

| | | | |
|---|---|---|---|
| | | 3P Cable Holder | 51048-0300 |
| | CN4102 | 15P Socket | AKP1038 |
| | CN4106 | Header (2P) | AKP7138 |
| | CN4105,CN4107 | Header (5P) | AKP7139 |
| | | Heat Sink | ANH-575 |
| | X4101 (10.0 MHz) | | DSS1048 |
| | JA4601 | Optical Module | GP1FA550RZ |
| | CN4103 | 15P Jumper Connector | KPE15 |
| | | PCB Binder | VEF1040 |
| | CN4101 | 30P FFC Connector | VKN1261 |
| | KN4101 | Earth Plate | VNF1084 |

## B IC UNIT

### SEMICONDUCTORS

| | | | |
|---|---|---|---|
| ⚠ | | IC4006 | NJM7805FA |

### CAPACITORS

| | | | |
|---|---|---|---|
| | | C4009 | CEAT101M10 |
| | | C4008 | CEAT1R0M50 |

### OTHERS

| | | | |
|---|---|---|---|
| | | 3P Cable Holder | 51048-0300 |
| | J4002 | 3P Parallel Cable | D20PYY0310E |

## C KEY-R UNIT

### SEMICONDUCTORS

| | | | |
|---|---|---|---|
| | | Q4905,Q4906 | DTC124EK |
| | | D4905,D4906 | LT1E40A |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| **SWITCHES AND RELAYS** | | | |
| | S4903,S4904 | | ASG7013 |
| **RESISTORS** | | | |
| | All Resistors | | RS1/10S□□□J |
| **OTHERS** | | | |
| | | 5P Cable Holder | 51048-0500 |

## D KEY-L UNIT

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | Q4903,Q4904 | | DTC124EK |
| | D4903 | | LT1E40A |
| | D4904 | | SML-210VT |
| **SWITCHES AND RELAYS** | | | |
| | S4901,S4902 | | ASG7013 |
| **RESISTORS** | | | |
| | All Resistors | | RS1/10S□□□J |
| **OTHERS** | | | |
| | | 5P Cable Holder | 51048-0500 |
| | | 7P Cable Holder | 51048-0700 |
| | J4907 | 5P Parallel Cable | D20PYY0515E |
| | J4904 | 7P Parallel Cable | D20PYY0710E |

## E RELAY UNIT

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | Q4901,Q4902 | | 2SA1037K |
| **CAPACITORS** | | | |
| | C4901 | | CKSQYF104Z25 |
| **RESISTORS** | | | |
| | All Resistors | | RS1/10S□□□J |
| **OTHERS** | | | |
| | | 2P Cable Holder | 51048-0200 |
| | | 8P Cable Holder | 51048-0800 |
| | J4902 | 2P Parallel Cable | D20PYY0210E |
| | J4901 | 8P Parallel Cable | D20PYY0815E |
| | CN4901 | Jumper Connector | SBRK07S-4 |
| | | PCB Binder | VEF1040 |

## F BLUE UNIT

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | D4901 | | EB3804X |
| **CAPACITORS** | | | |
| | C4902 | | CKSQYF104Z25 |
| **OTHERS** | | | |
| | | 2P Cable Holder | 51048-0200 |

| Mark | No. | Description | Part No. |
|---|---|---|---|

## G MD CORE MAIN UNIT

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC110 | | AK4519VF |
| | IC107 | | BD7910FV |
| | IC105 | | BR93LC56F |
| | IC101 | | IR3R55M |
| | IC102 | | LR376487 |
| | IC106 | | M56788FP |
| | IC103 | | MSM51V4400D70TSK |
| | IC104 | | PD5593A |
| ⚠ | IC108 | | RN5RG32AA |
| | IC109 | | TC74VHC08FT |
| | Q101 | | 2SB1188 |
| | Q102 | | 2SC4081 |
| | D101 | | SBE803 |
| | D102 | | UDZ3.6B |
| **COILS AND FILTERS** | | | |
| | L101,L103,L104,L107 | chip coil (4.7μH) | DTL1024 |
| | L108 | chip solid inductor | QTL1015 |
| | L105 | chip coil (47μH) | RTL1003 |
| | L102 | chip coil (0.47μH) | RTL1007 |
| | L116 | chip beeds | VTL1093 |
| | L109-L115 | chip beeds | VTL1105 |
| **SWITCHES AND RELAYS** | | | |
| | S101,S102 | | RSF1012 |
| **CAPACITORS** | | | |
| | C122,C186,C215 | | CCSQCH101J50 |
| | C127,C128 | | CCSQCH120J50 |
| | C151 | | CCSQCH220J50 |
| | C105-C109 | | CCSQCH271J50 |
| | C110 | | CCSQCH331J50 |
| | C201,C202 | | CCSQCH470J50 |
| | C191,C192,C207,C209,C211 | | CEV100M16 |
| | C214 | | CEV100M16 |
| | C145,C189,C198,C213 | | CEV101M4 |
| | C152 | | CEV101M6R3 |
| | C195,C196 | | CEV220M6R3 |
| | C180,C182,C188 | | CEV470M6R3 |
| | C120 | | CEV4R7M35 |
| | C217 | | CKSQYB102K50 |
| | C139,C148,C212,C216 | | CKSQYB103K50 |
| | C218,C219 | | CKSQYB103K50 |
| | C129 | | CKSQYB104K25 |
| | C101,C102,C104,C117,C118 | | CKSQYB105K10 |
| | C166,C167 | | CKSQYB153K50 |
| | C193,C194 | | CKSQYB222K50 |
| | C137,C141,C142 | | CKSQYB223K50 |
| | C103,C185 | | CKSQYB273K50 |
| | C116 | | CKSQYB332K50 |
| | C115,C121 | | CKSQYB333K50 |
| | C112 | | CKSQYB472K50 |
| | C133 | | CKSQYB473K16 |
| | C111,C114 | | CKSQYB474K16 |
| | C174,C175 | | CKSQYB562K50 |
| | C154,C157,C162,C163 | | CKSQYB821K50 |
| | C135,C140,C143,C146,C155 | | CKSQYF104Z25 |
| | C176,C181,C183,C184,C187 | | CKSQYF104Z25 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C190,C197,C199,C204-C206 | | CKSQYF104Z25 |
| | C208,C210 | | CKSQYF104Z25 |
| | C119,C123-C126,C130,C132 | | CKSQYF105Z16 |
| | C134,C136,C138,C147,C164 | | CKSQYF105Z16 |
| | C177 | | CKSQYF105Z16 |

### RESISTORS

| | | | |
|---|---|---|---|
| | R111 | | RS1/8S270J |
| | Other Resistors | | RS1/10S□□□J |

### OTHERS

| | | | |
|---|---|---|---|
| | CN104 | 30P Connector | RKN1039 |
| | X101 | (33.8MHz) | RSS1055 |
| | CN105 | ZR Connector | S2B-ZR-SM3A |
| | CN102 | Connector 2P | S2B-ZR-SM3A-R |
| | CN106 | PH Connector | S5B-PH-SM3 |
| | CN101 | Connector for flex. cable | SFV28R-1ST |
| | CN103 | Connector for flex. cable | SFW7R-2ST |

## H MD CORE SW UNIT

### SWITCHES AND RELAYS

| | | | |
|---|---|---|---|
| | S701 | | RSF1009 |
| | S702 | | RSF1010 |

### RESISTORS

| | | | |
|---|---|---|---|
| | All Resistors | | RS1/10S□□□J |

### OTHERS

| | | | |
|---|---|---|---|
| | CN701 | Flexible Connector | SFW7R-1ST |

# 6. ADJUSTMENT

## 6.1 MD SECTION ADJUSTMENT

### ■ Jigs and Measuring Instructions

- Thermometer
- Oscilloscope
- Optical Power Meter
- Jitter Meter
- Test Disc

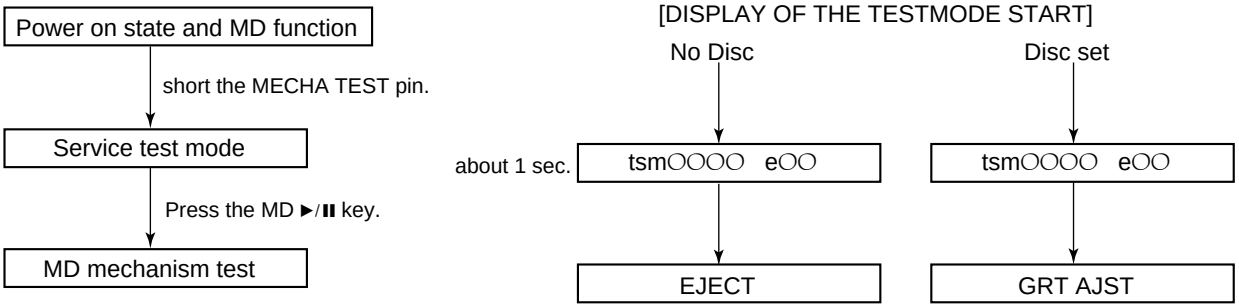
For servo system adjustment : GGF1328 (MMD-212)
For recording/playback inspection : GGF1328 (MMD-212), GGF1277 (or MMD-317)
TGYS1 (or MMD-110), Commercial discs

### 6.1.1 Necessary Adjustment Points

| When | Adjustment points |
|---|---|
| Exchange PICKUP | ② – ⑧ → Page 31–36 |
| Exchange Servo Base Assy (SPINDLE MOTOR) | ③ – ⑧ → Page 32–36 |
| Exchange MD CORE MAIN UNIT | ①, ④ – ⑧ → Page 31, 33–36 |
| Exchange MD HEAD | ⑧ → Page 36 |
| Exchange Loading Mechanism Assy | ——— |
| Exchange Servo Mechanism Assy | ③ – ⑧ → Page 32–36 |
| Exchange MD Mechanism Assy (Loading Mechanism Assy + Servo Mechanism Assy) | ③ – ⑧ → Page 32–36 |

## 6.1.2 Test Mode

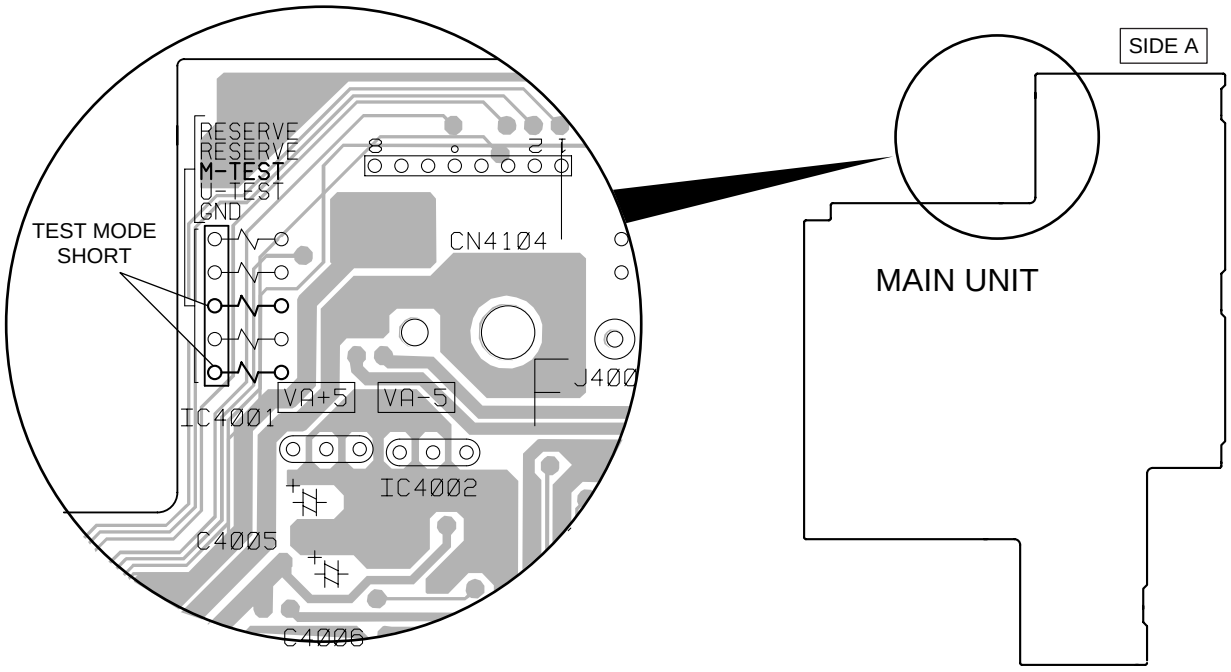
● Use the Remote Control Unit of Accessory or Service Remote Control Unit (GGF1067) at the Test Mode.
Note1 : It is impossible to enter the Test Mode in the Single Operation Mode.
Note2 : Unit Test Mode (U-TEST) is for inspection by the function checker of the production line.




## ■ Correspondence key of the Test mode

| Command Name | Remote Control Unit of Accessory+(Main Unit Key) | CLD Service Remote Control Unit (GGF1067) | SR Code |
|---|---|---|---|
| TEST MODE | Short-circuit the MECHA TEST pin | ESC | (A85F) |
| EJECT | ▲ (MD EJECT) of the main unit key | ◄◄ (STILL) | (A854) |
| MENU next 1<br>MENU next 2<br>MENU next 3<br>MENU previous | MENU<br>● (REC) of the main unit key<br>CANCEL<br>DISPLAY | FRM / TIM<br>CHAP<br>CHP / TIM<br>CLEAR | (A841)<br>(A840)<br>(A813)<br>(A845) |
| SET (Decision, Execution)<br>STOP | ►/II of the main unit key<br>■ (STOP) of the main unit key | PLAY<br>■ / EJECT | (A817)<br>(A816) |
| CHANGE (switch) | SET | SEARCH | (A842) |
| Set UP | ►► (SCAN) | ►► (SCAN) | (A810) |
| Set DOWN | ◄◄ (SCAN) | ◄◄ (SCAN) | (A811) |
| FORWARD | + | ►►I (SKIP) | (A852) |
| REVERSE | − | I◄◄ (SKIP) | (A853) |

## ■ Test Point



## 6.1.3 MD Mechanism Assy Adjustment and Check

### ① Temperature Check (Please perform this check soon after the power has been switched on.)

**Note:** When IC101 (RF-AMP) or IC104 (mechanical controller) has been exchanged or when a correction changing VD+3 has been made, be sure to correctly perform all steps up to step 7.

| Step No. | Operation Keys and Operation Method | FL Display | Status | Remarks |
|---|---|---|---|---|
| 1 | In the Power ON state, selecting MD function,short the "MECHA TEST pin". | EJECT | Test mode | |
| 2 | Press the ● (REC) key. | TEMP○○□□ | The microcomputer starts measuring | ○○: Measuring value<br>□□: Set value |
| 3 | When □□ is 80 or more at this time, the adjustment is OK (step 4 and following can be omitted.) | | End | |
| When □□ is 80 (not passed) | | TEMP○○80 | 80 is the default value (unadjusted). | |
| 4 | Measure the ambient temperature T (°C) and check that the measuring value (○○) is within the standard in regard to the microcomputer set value (□□).<br><br>Note: When the indication of the measuring value (○○) is not stable, and the ambient temperature T (°C) is 25 °C or less, set to the lower value.<br>When the ambient temperature is over 25 °C, set to the higher value. | TEMP ○○ □□<br>μ-com Measuring value ↑ ↑ μ-com Set value | | |

| Room Temperature [T (°C)] | hex= (○○ – □□) |
|---|---|
| 11.6 to 16.9 | Measuring value (○○) –2 |
| 17.0 to 22.3 | Measuring value (○○) –1 |
| 22.4 to 27.6 | Measuring value (○○) |
| 27.7 to 33.0 | Measuring value (○○) +1 |
| 33.1 to 38.4 | Measuring value (○○) +2 |

When the microcomputer value is: 79, 7A, 7B, 7C, 7D (– ↑ 7A, + ↓ 7D)

| | | | | |
|---|---|---|---|---|
| 5 | Change □□ with the + key and – key. | TEMP 7B 7B | | |
| 6 | Turn off the power of the CD tuner. | | Data writes to the EEPROM and turns the system power to off. Test mode returns to the normal mode. | |

### ② Laser Power Check

| Step No. | Operation Keys and Operation Method | FL Display | Status | Remarks |
|---|---|---|---|---|
| 1 | In the Power ON state, selecting MD function,short the "MECHA TEST pin". | EJECT | Test mode | Laser wavelength: 780 nm |
| 2 | Press the SET key (Remote control unit). | ppw | PLAY power output status | |
| 3 | Measure the laser power with an optical power meter. | ppw | | |
| 4 | At this time, check that the measuring value (PLAY power) meets the standard value of the table on the right.<br><br>Note: When the standard value on the right is applied, the numerical value immediately after entry into test mode 2 shall be taken as the standard. | ppw | TEMP ○○ □□<br>μ-com Measuring value ↑ ↑ μ-com Set value | May be omitted. |

| hex=(○○ – □□) | Standard value (mW) |
|---|---|
| +02 to +04 | 0.69 ± 0.12 |
| –01 to +01 | 0.67 ± 0.1 |
| –02 to –04 | 0.63 ± 0.1 |

| | | | | |
|---|---|---|---|---|
| 5 | Press the SET key. | rpw | REC power output status | |
| 6 | At this time, check that the measuring value (REC power) meets the standard value of the table on the right. | rpw | | |

| hex=(○○ – □□) | Standard value (mW) |
|---|---|
| +02 to +04 | 6.18 ± 0.93 |
| –01 to +01 | 5.79 ± 0.87 |
| –02 to –04 | 5.47 ± 0.82 |

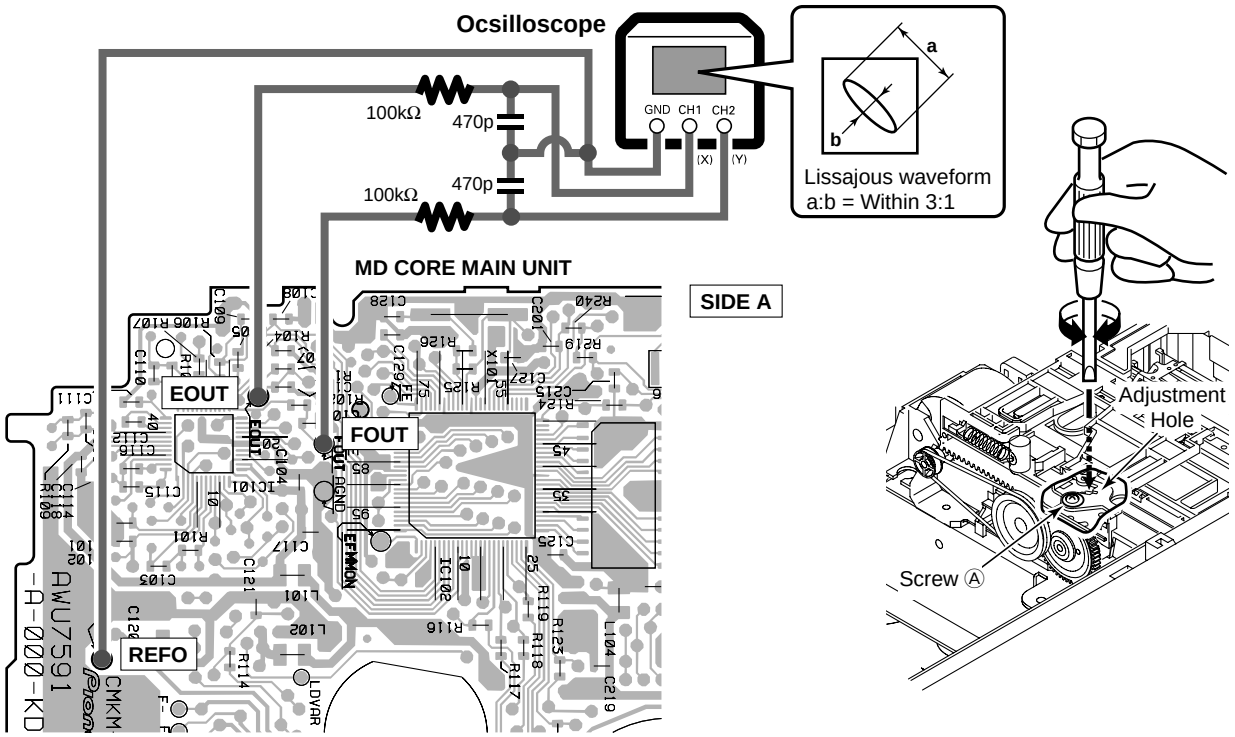
| | | | | |
|---|---|---|---|---|
| 7 | Press the ■ (STOP) key. | | The LD goes out. | |

## ③ Grating Adjustment

Press the ⏏ (MD EJECT) key to take out the cartridge of Optical power meter in the state of step 7 of ② , and then it is possible from steps 2 of this item.

| Step No. | Operation Keys and Operation Method | FL Display | Status | Remarks |
|---|---|---|---|---|
| 1 | In the Power ON state, selecting MD function,short the "MECHA TEST pin". | EJECT | Test mode | |
| 2 | Insert the test disc GGF1328 (MMD-212). | LOADING<br>GRT AJST | Grating adjustment state | |
| 3 | Press the ►/❚❚ key. | LON :<br>LAg :<br>GEG : | Playback is started in tracking open state.<br>(The servo is closed only for focus and spindle.) | |
| 4 | Connect an oscilloscope according to the following connection diagram and loosen the screw Ⓐ at the side of the adjustment hole. Turn the hole with a screwdriver until the Lissajous waveform becomes as shown in the figure, and then tighten the screw Ⓐ. | GRT AJST | Lissajous waveform a:b = Within 3:1 | |
| 5 | Press the ■ (STOP) key. | | Adjustment end | |

### Connection Diagram



## ④ Preliminary Adjustment

It is possible from steps 3 of this item in the state of step 5 of ③ .

| Step No. | Operation Keys and Operation Method | FL Display | Status | Remarks |
|---|---|---|---|---|
| 1 | In the Power ON state, selecting MD function,short the "MECHA TEST pin". | EJECT | Test mode | |
| 2 | Insert the test disc GGF1328 (MMD-212). | LOADING<br>GRT AJST | | |
| 3 | Press the ■ (STOP) key. | tsm○○○○e○○ | Return to menu display. | |
| 4 | Press the MENU key (until "AUT YOBI" is displayed). | AUT YOBI | Preliminary adjustment mode | |
| 5 | Preliminary adjustment starts when the ►/II key is pressed. | HAo :<br>RFg :<br>PTG :<br>\|<br>Can't ADJ.<br><br>COMPLETE | <br><br><br><br>Defective adjustment<br>(problem with the servo system)<br>Adjutment end | |
| 6 | Press the ■ (STOP) key. | AUT YOBI | Return to menu display. | |
| 7 | Turn off the power of the CD tuner. | | Data writes to the EEPROM and turns the system power to off. Test mode returns to the normal mode. | |

**Note:** When this adjustment is performed after defocus adjustment has been performed, defocus is returned to the initial state, and defocus adjustment must be performed.

## ⑤ Normal Adjustment

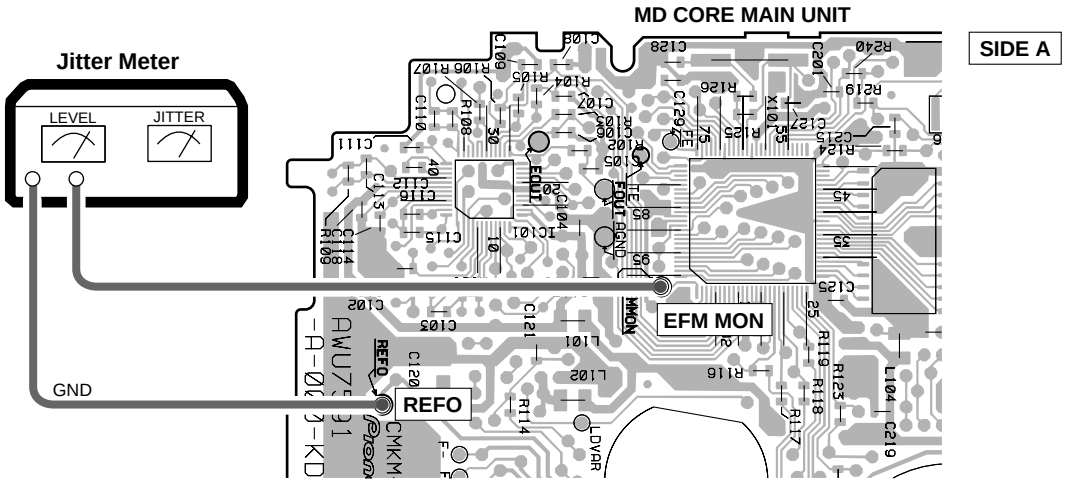
| Step No. | Operation Keys and Operation Method | FL Display | Status | Remarks |
|---|---|---|---|---|
| 1 | In the Power ON state, selecting MD function,short the "MECHA TEST pin". | EJECT | Test mode | |
| 2 | Insert the test disc GGF1328 (MMD-212). | LOADING<br>GRT AJST | | |
| 3 | Press the MENU key (until "AUT YOBI" is displayed). | AUT AJST | Normal adjustment mode | |
| 4 | Normal adjustment starts when the ►/II key is pressed. | PEG :<br>HAG :<br>\|<br>Can't ADJ.<br><br>COMPLETE | <br><br><br>Defective adjustment<br>(problem with the servo system)<br>Adjutment end | |
| 5 | Press the ■ (STOP) key. | AUTO AJST | Return to menu display. | |

## ⑥ Defocus Adjustment

It is possible from steps 3 of this item in the state of step 5 of ⑤ .

| Step No. | Operation Keys and Operation Method | FL Display | Status | Remarks |
|---|---|---|---|---|
| 1 | In the Power ON state, selecting MD function,short the "MECHA TEST pin". | EJECT | Test mode | |
| 2 | Insert the test disc GGF1328 (MMD-212). | LOADING<br>GRT AJST | | |
| 3 | Press the MENU key.(until "deFO AJST" is displayed.) | deFO AJST | | |
| 4 | Press the ►/II key.<br>of ○○○○ c □□□□<br>Defocus Value ↑ ↑ C1 Error Value | PEG :<br>FESpp :<br>of000c0015 | Defocus mode is entered, and after automatic execution of normal adjustment, the C1 error at the time of focus offset 0 is displayed. | |
| 5 | Check the jitter value and end the adjustment when the intermediate jitter value is 29 nsec or less. | | | |
| 6 | Press the ● (REC) key. | of+04 c0032 | The C1 error with application of a focus offset of about 0.4µm on the + side is displayed. The jitter value (J+) at this time is recorded. | |
| 7 | Press the ● (REC) key. | of-04 c0020 | The C1 error with application of a focus offset of about 0.4µm on the – side is displayed. The jitter value (J–) at this time is recorded. | |
| 8 | When J+ is larger than J-, press the ● (REC) key and display the C1 error when the focus offset is applied up to +0.4µm.<br>(Do nothig when J- is larger than J+.) | of+04 c0032 | | |
| 9 | Change the value with ◄◄ and ►► keys until the value becomes the same. | of+04 c0032<br>of+03 c0025<br>of+02 c0020 | When the smaller offset of the jitter value has been corrected mistakenly, press the ENTER key and return to step 4. | |
| 10 | Press the ►/II key. | COMPLETE | The mean value of the changed set value and the offset of the other setting limit is written into the EEPROM as the compensation offset. | |
| 11 | Turn off the power of the CD tuner. | | Release from the test mode. | |

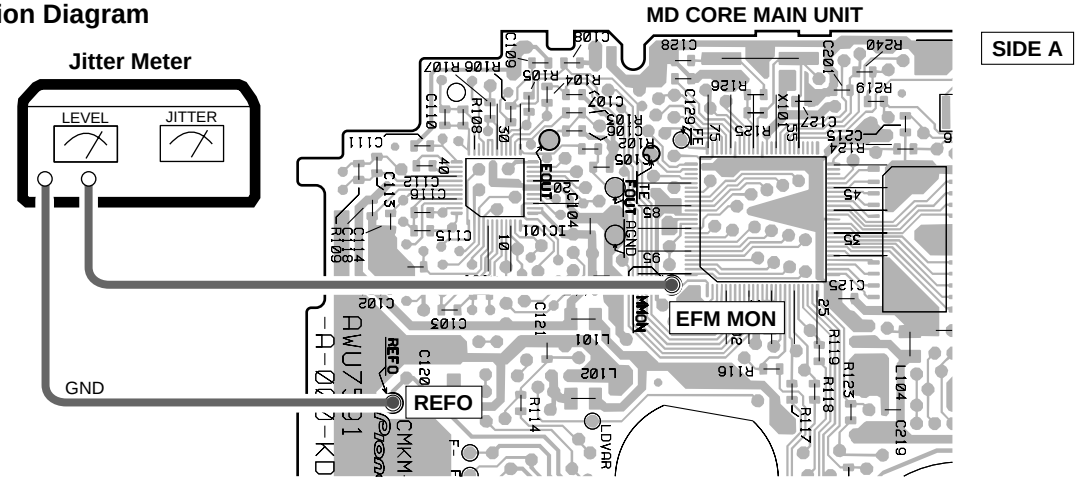
### Connection Diagram



## ⑦ Jitter/C1 Error Check at the time of Playback

| Step No. | Operation Keys and Operation Method | FL Display | Status | Remarks |
|---|---|---|---|---|
| 1 | In the Power ON state, selecting MD function,short the "MECHA TEST pin". | EJECT | Test mode | |
| 2 | Insert the test disc GGF1328 (MMD-212). | LOADING<br>GRT AJST | | |
| 3 | Perform "⑤ Normal Adjustment" (steps 3 to 5). | AUT AJST | | |
| 4 | Press the ● (REC) key. | TEST PLAY | TEST PLAY mode | |
| 5 | Press the SET key and display the inner circumference address. | ADRES 0050 | | |
| 6 | Press the ►/II key and display the C1 error for the inner circumference. | a0050 c0015 | Check that the jitter value meets the standard value of the following table.<br>**GGF1328 (MMD-212) jitter value**<br>Inner circumference: 31 nsec or less<br>Intermediate circumference: 29 nsec or less<br>Outer circumference: 29 nsec or less | |
| 7 | Press the DISPLAY key. | A0062 c0013<br>AVE. c0012 | Seven data are acquired, the largest and the smallest value are discarded, and fixed display is made for the mean value of the remaining five data. Check that this value is **200** or less. | |
| 8 | Press the DISPLAY key. | a006F c0017 | The fixed display of the C1 error is enabled. | |
| 9 | Press the ■ (STOP) key. | TEST PLAY | | |
| 10 | Press the SET key and display the inner circumference address. | ADRES 0050 | | Intermediate and outer circumference may be omitted. |
| 11 | Press the ● (REC) key and display the intermediate circumference address. Perform steps 6 to 9 in this condition. | ADRES 03C0<br>a03C0 c0009<br>TEST PLAY | | |
| 12 | Press the SET key and display the inner circumference address. | ADRES 0050 | | |
| 13 | Press the ● (REC) key twice to display the outer circumference address. Perform steps 6 to 9 in this condition. | ADRES 0700<br>a0700 c0008<br>TEST PLAY | | |
| 14 | Press the ▲ (MD EJECT) key, eject the test disc GGF1328 (MMD-212), and insert TGYS1 (or MMD-110). | EJECT<br>LOADING<br>GRT AJST | | |
| 15 | Perform steps 3 to 13 and check the jitter/C1 error with the test disc TGYS1 (or MMD-110). | a0062 c0009<br>a03d2 c0007<br>a0712 c0006 | Check that the jitter value meets the standard value of the following table.<br>**TGYS1 (or MMD-110) jitter value**<br>Inner circumference: 29 nsec or less<br>Intermediate circumference: 27 nsec or less<br>Outer circumference: 27 nsec or less | |
| 16 | Press the ▲ (MD EJECT) key. | EJECT | The test disc TGYS1 (or MMD-110) is ejected. | |
| 17 | Power OFF | | Release from the test mode. | |

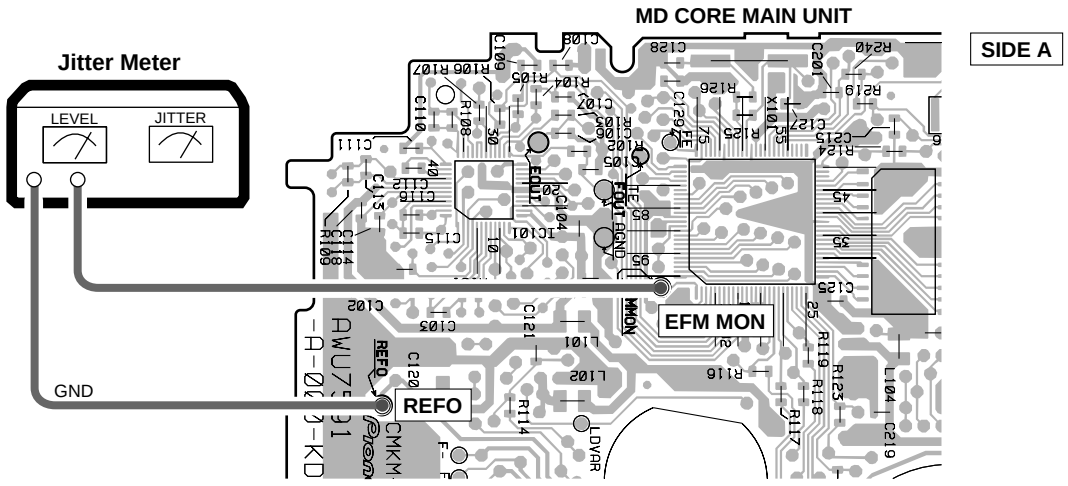
### Connection Diagram



## ⑧ Jitter/C1 Error Check at the time of Recording/Playback

| Step No. | Operation Keys and Operation Method | FL Display | Status | Remarks |
|---|---|---|---|---|
| 1 | In the Power ON state, selecting MD function,short the "MECHA TEST pin". | EJECT | Test mode | |
| 2 | Insert the test disc GGF1277 (or MMD-317). | LOADING<br>GRT AJST | | |
| 3 | Perform "⑤ Normal Adjustment" (steps 3 to 5). | AUTO AJST | | |
| 4 | Press the ● (REC) key. | TEST REC | TEST REC mode | |
| 5 | Press the SET key and display the inner circumference address. | a0050 pw0D | | |
| 6 | When the ►/II key is pressed, TEST REC starts, and when 25 addresses or more have been sent, stop by pressing the ■ (STOP) key. | a0069 pw0D<br>TEST REC | **Note:**<br>When the initial address (0050) part of the inner circumference (or intermediate/outer circumference) has been used 1000 times or more, press the 2 (SCAN) key and shift the address by 10 hex. (The address is shifted (up to 10 times) according to the use frequency of the disc.) | Intermediate and outer circumference may be omitted. |
| 7 | Press the SET key and display the inner circumference address. | a0050 pw0D | | |
| 8 | Press the ● (REC) key and display the intermediate circumference. | a03C0 pw0D | | |
| 9 | Perform step 6. | a03D9 pw0D<br>TEST REC | | |
| 10 | Press the SET key and display the inner circumference address. | a0050 pw0D | | |
| 11 | Press the ● (REC) key twice and display the outer circumference address. | a0700 pw0D | | |
| 12 | Perform step 6. | a0719 pw0D<br>TEST REC | | |
| 13 | Press the ● (REC) key. | TEST PLAY | TEST PLAY mode | |
| 14 | Perform steps 5 to 13 of " ⑦ Jitter/C1 Error Check at the time of Playback".<br>At the time of self-recording, wait for seven addresses after TEST PLAY start, and then press the DISPLAY key and enter into mean value mode.<br>(Good recording may not be possible for several addresses at the beginning.) | a0069 c0009<br>a03D9 c0007<br>a0719 c0006 | Check that the jitter/C1 error at the inner/intermediate/outer circumference of GGF1277, and check that the jitter value satisfies the standard value of the following table.<br>**GGF1277 jitter value**<br>Inner circumference: 33 nsec or less<br>Intermediate circumference: 31 nsec or less<br>Outer circumference: 31 nsec or less | |
| 15 | Press the ▲ (MD EJECT) key. | EJECT | The test disc (GGF1277) is ejected. | |
| 16 | Turn off the power of the CD tuner. | | Release from the test mode. | |

### Connection Diagram



# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### 7.1.1 SINGLE OPERATION MODE

#### ■ How to enter the single operation mode

1. Supply DC power to CN4103 power supply pin of the MD MAIN UNIT. (Pin7 : +9V ,Pin8 : GND ,Pin9 : –9V)
2. Short-circuit the "P-ON" pin and "GND" pin.

#### ■ Key operation in the single operation mode

| | | |
|---|---|---|
| [REC] | : To record | MD key |
| [PLAY] | : To playback | |
| [STOP] | : To stop the recording and playing | |
| [EJECT] | : To eject | |
| [INPUT] (IN) | : To switch the input in the recording mode (Digital/Analog) | |
| [+] | : To search track forward | |
| [–] | : To search track reverse | |
| [CUE] (FF) | : To forward | |
| [REV] | : To reverse | |

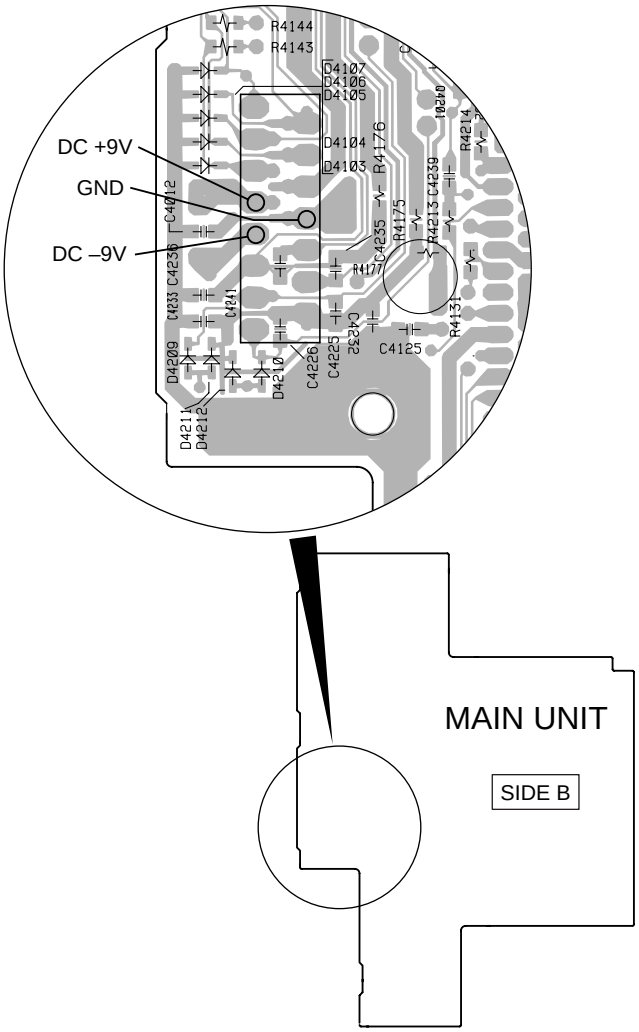
#### ■ About the recording input switch

Recording input is able to switch with the "INPUT" key.
Digital and analog are selected alternately whenever press the "INPUT" key. Initial value is the Digital input mode.

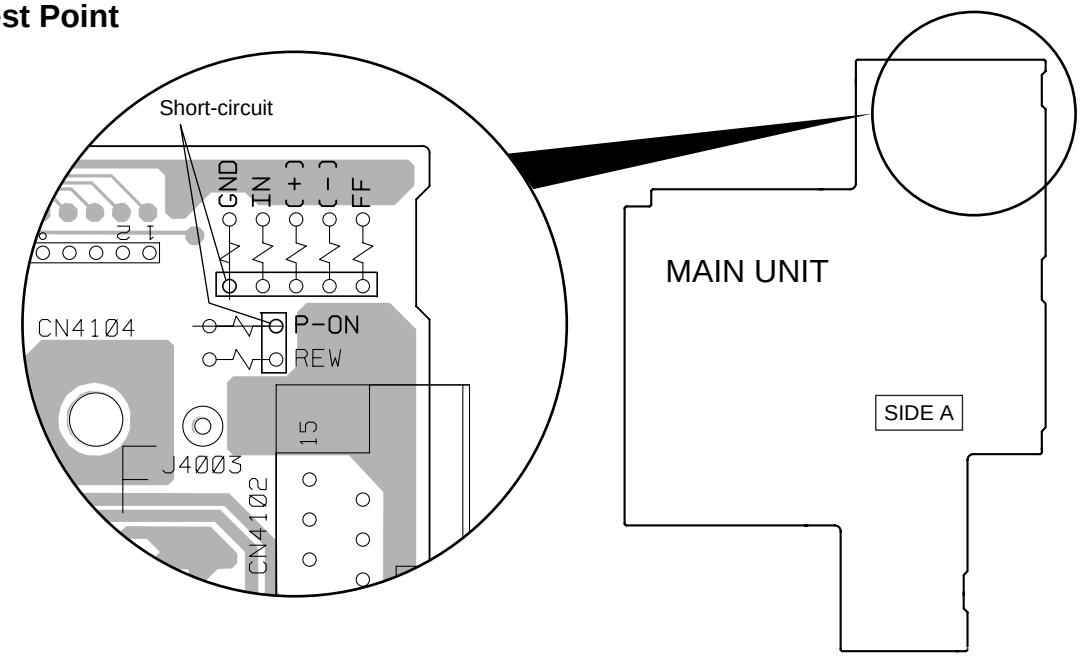
**Note:**

(1) Recording input can switch only during REC PAUSE.
(2) Blue LED of the center of MD flashes in the single operation mode.
(3) It cannot enter the adjustment mode of the mechanism unit in the single operation mode.

■ POWER SUPPLY POINT




#### ■ Test Point

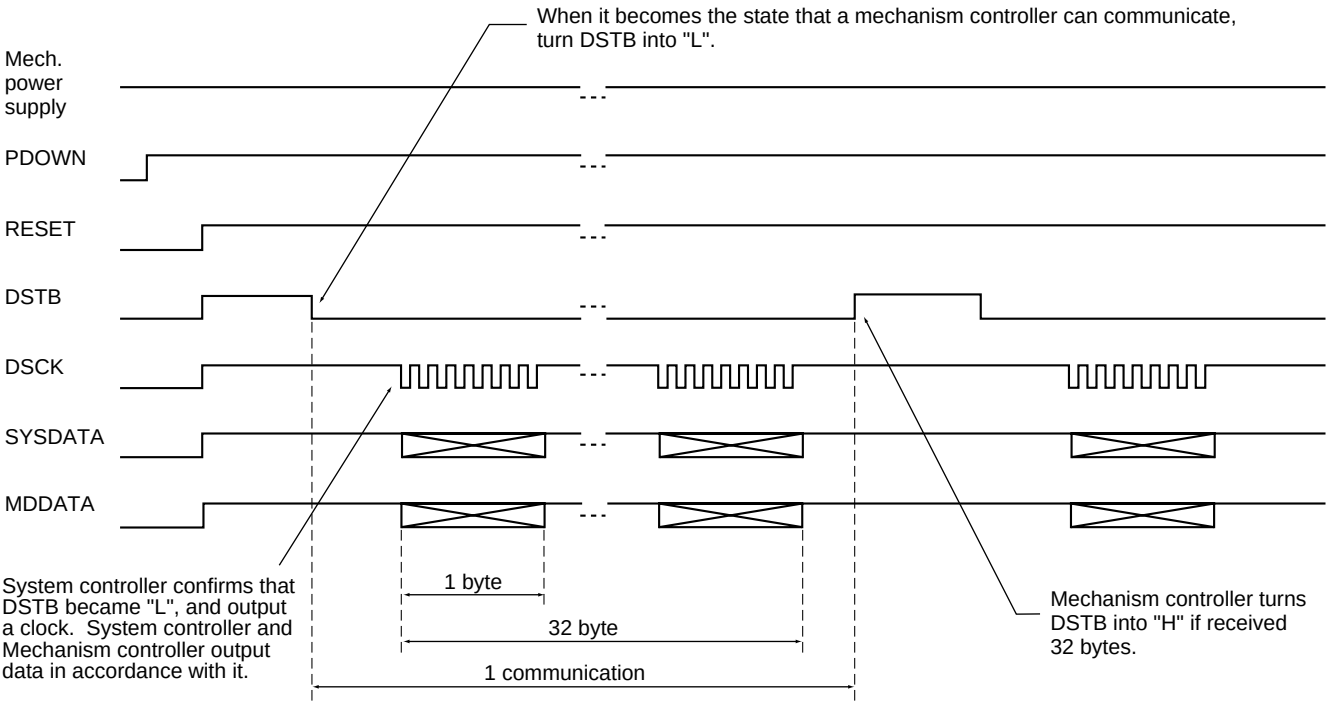


## 7.1.2 POWER ON SEQUENCE

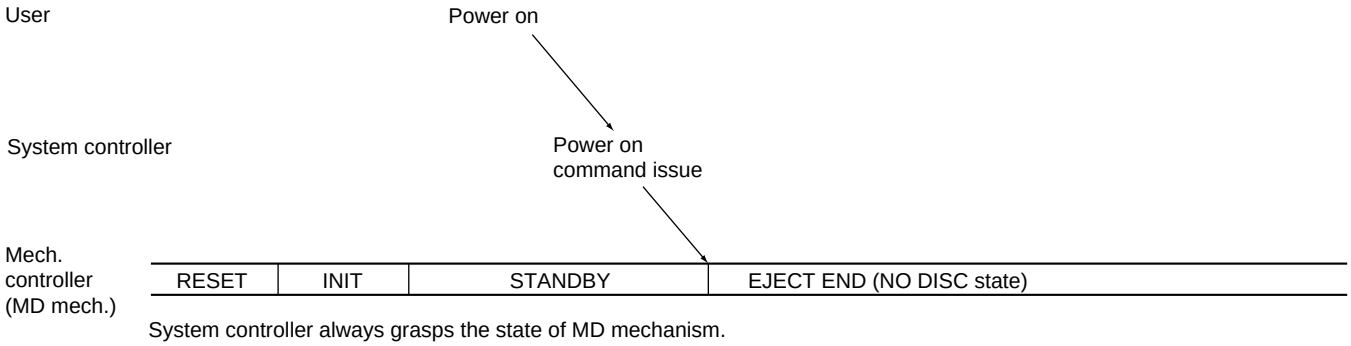
### Outline

- When MD mechanism is normal, an operation of MD is decided whether communication is done normally.
  When MD mechanism does not perform a correct operation, first confirm waveform of communication. (Refere to step 1.)
- The command that System controller transfers please refer to 4 from step 2.

### 1. Reset and communication

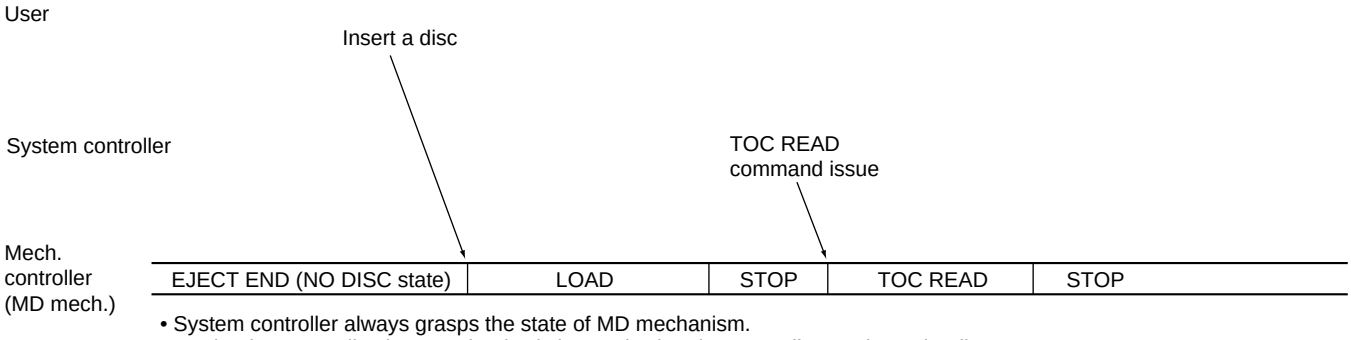

When it becomes the state that a mechanism controller can communicate, turn DSTB into "L".
Mech. power supply
PDOWN
RESET
DSTB
DSCK
SYSDATA
MDDATA
System controller confirms that DSTB became "L", and output a clock. System controller and Mechanism controller output data in accordance with it.
1 byte
32 byte
1 communication
Mechanism controller turns DSTB into "H" if received 32 bytes.

### 2. Power ON



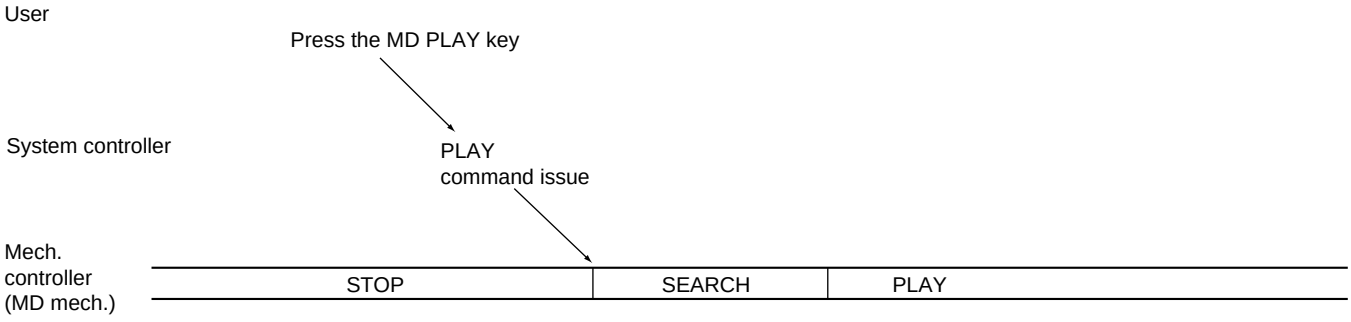

System controller always grasps the state of MD mechanism.

## 3. Disc insertion and TOC READ




- System controller always grasps the state of MD mechanism.
- Mechanism controller (MD mechanism) detects it when inserts a disc, and start loading.
- When do not perform a disc loading, it cannot conclude with defectiveness of MD Mechanism immediately. Because when communication between System controller and mecanism controller does not complete, do not perform a disc loading either.

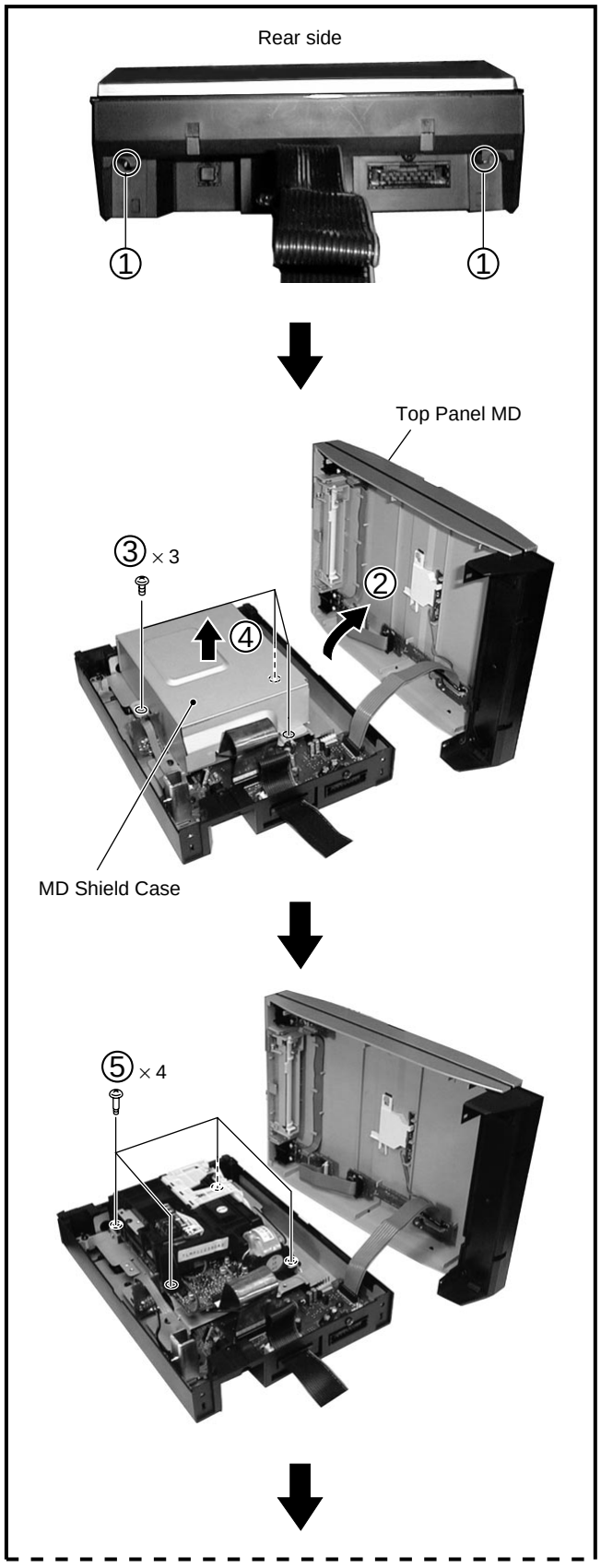
## 4. PLAY

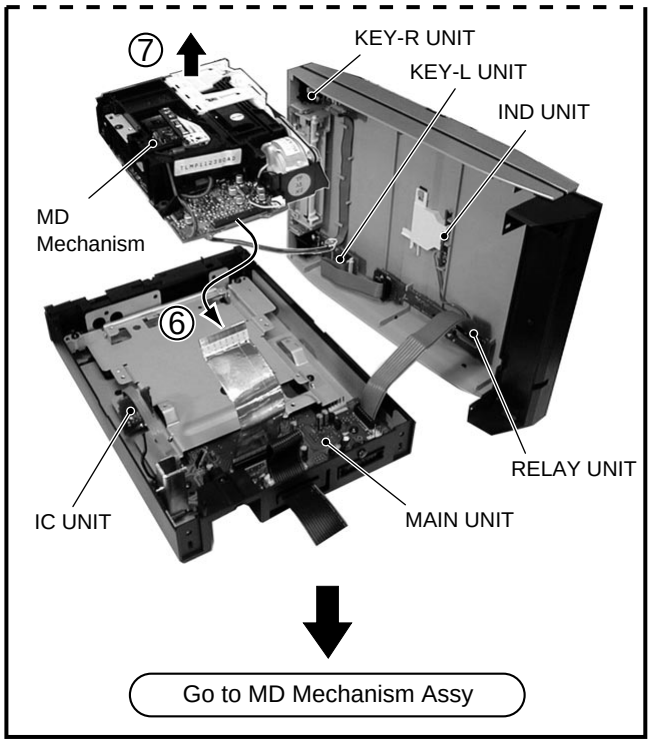



- System controller always grasps the state of MD mechanism.

## 7.1.3 DISASSEMBLY

### ■ Top Panel and MD Mechanism

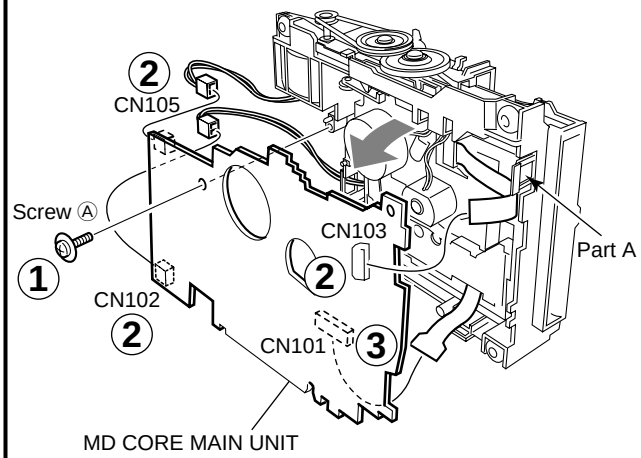


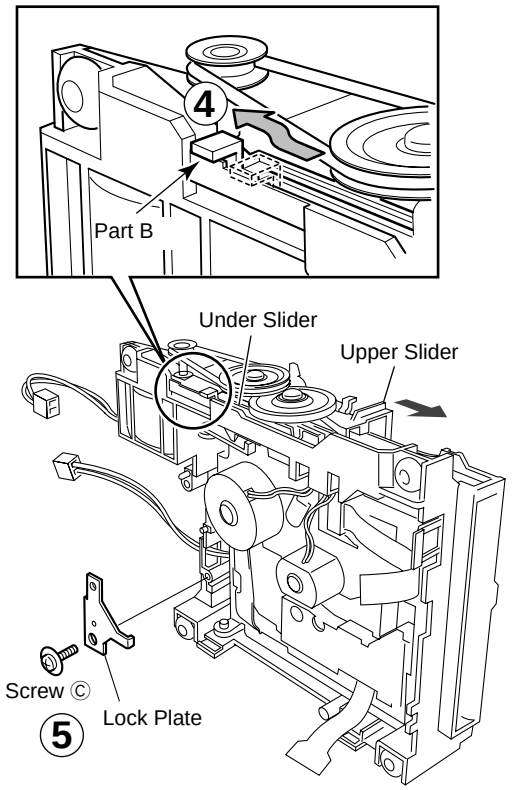

### ■ MD Mechanism Assy

**• Removal of the MD Mechanism Assy**

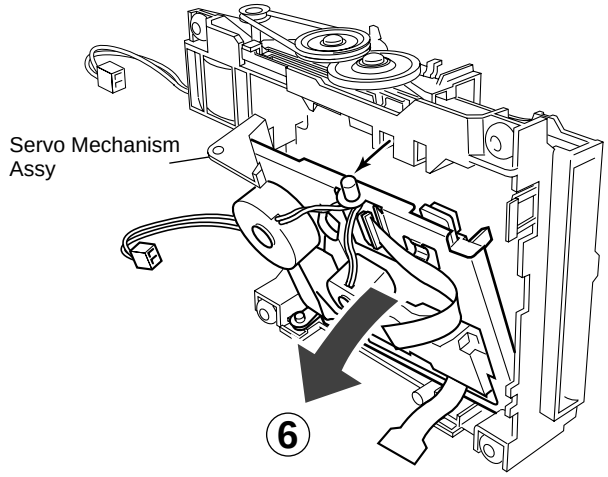
① Remove a screw Ⓐ.
② Disconnect the connectors (CN102, CN103 and CN105), open the hook of part A, and tilt the upper side of the MD CORE MAIN UNIT to the front.
③ Disconnect the connector (CN101) at the rear of the MD CORE MAIN UNIT and remove the MD CORE MAIN UNIT.



④ Shift part B to the position shown in the figure while raising the Under Slider. (At the same time, the Upper Slider moves to the front.)
⑤ Remove the Lock Plate. (One screw Ⓒ)




⑥ Remove the Servo Mechanism Assy.

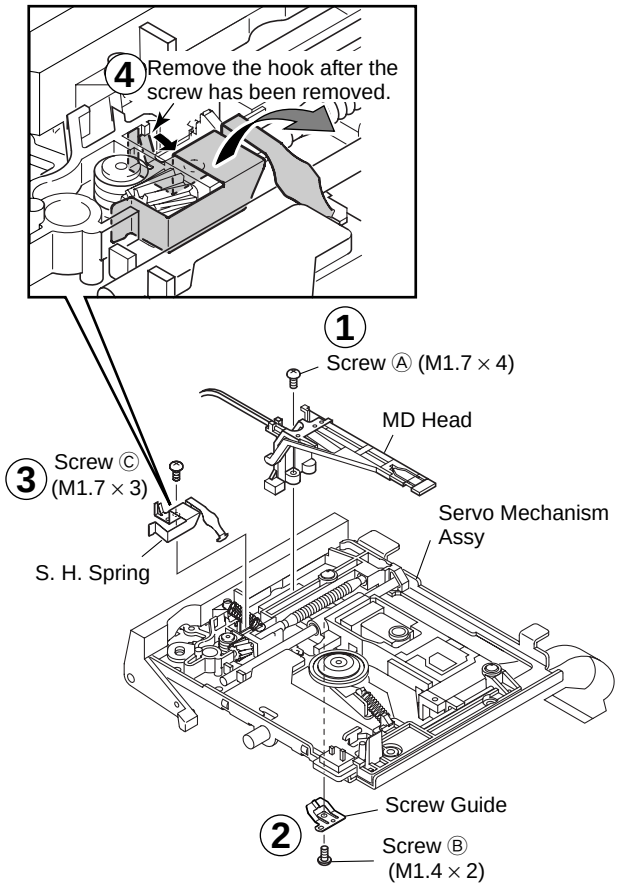



**• Caution for the time of installation of the servo mechanism assy**

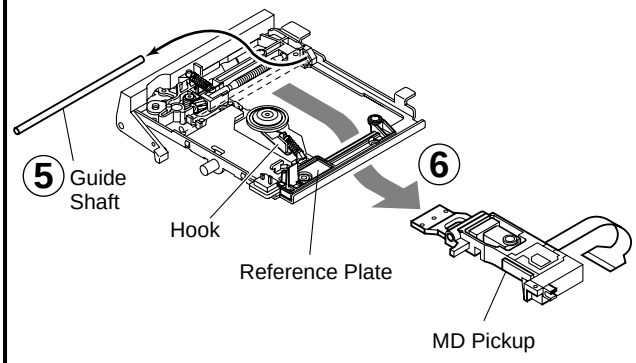
Move the MD Pickup to the innermost circumference.
The Servo Mechanism Assy is not installed other than the innermost circumference.

**• Removal of the MD Pickup**

① Remove the MD Head. (One screw Ⓐ)
② Remove the Screw Guide at the lower side of the MD Pickup. (One screw Ⓑ)
③ Remove the S. H. Spring. (One screw Ⓒ)
④ Remove the hook of the S. H. Spring as shown in the figure.




⑤ Raise the left side of the Guide Shaft and pull it out to the left.
⑥ Remove the MD Pickup. (With the front facing down, remove it to the front. At this time, the MD Pickup can be removed more easily when the Reference Plate is removed.)

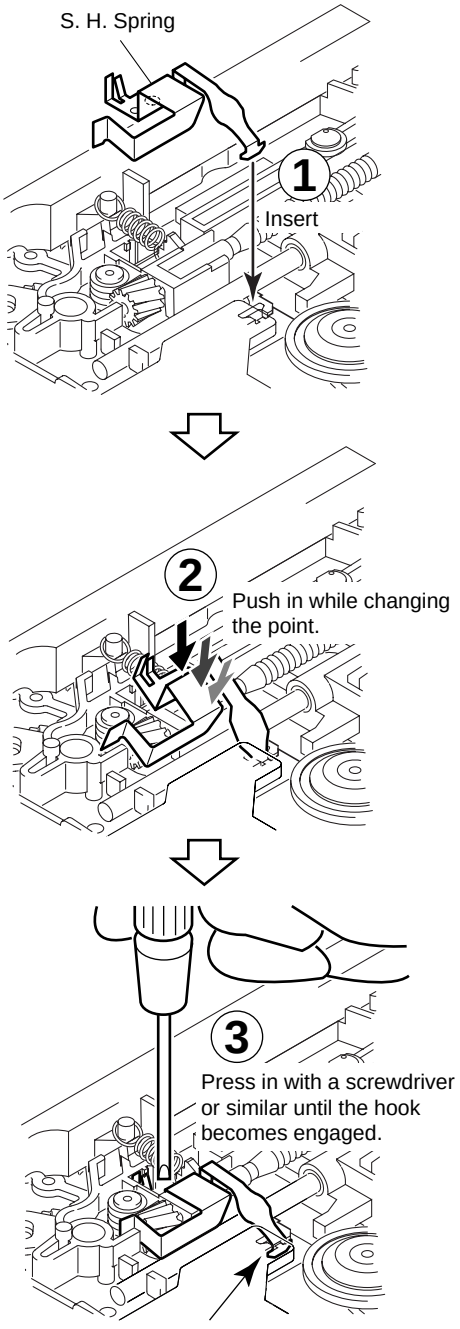


## • MD Pickup Installation

Perform installation in reverse order of the removal. (Please use care as the MD Head mounting screw can be crushed easily.
MD Head mounting screw tightening torque: 1.1 kg • cm

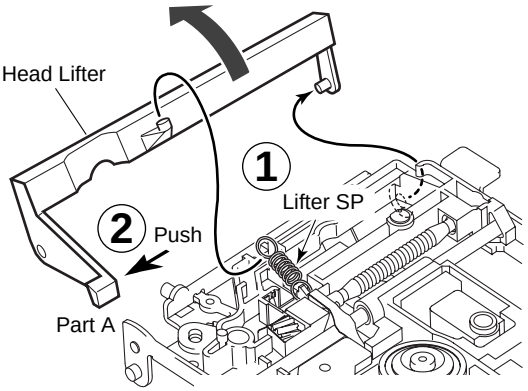
When the Reference Plate has been removed, confirm that the hook is engaged with the shaft of the spindle motor. (Take care that the mounting reference boss does not ride up.)

## • S. H. Spring Installation


S. H. Spring
1
Insert
2
Push in while changing the point.
3
Press in with a screwdriver or similar until the hook becomes engaged.
Confirm from the rear that the tip of the hook is engaged sufficiently.

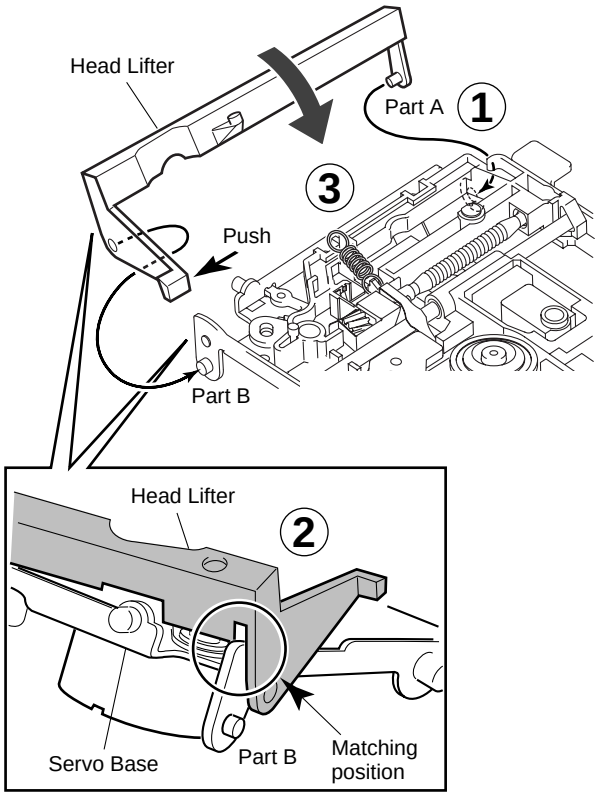
## • Removal of the Head Lifter

① Remove the Lifter SP.
② Tilt the Head Lifter to the rear and push part A to disengage it.




## • Head Lifter Installation

① Install part A in the Servo Base with the Head Lifter tilted to the back.
② Match the Head Lifter and the Servo Base as shown in the figure, and then engage part B.
③ While holding part B with your hand, tilt the Head Lifter to the front and install the Lifter SP.



## 7.2 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

### ■ PDG257A [MAIN UNIT (2/2) : IC4101]

**• System Control U-COM**

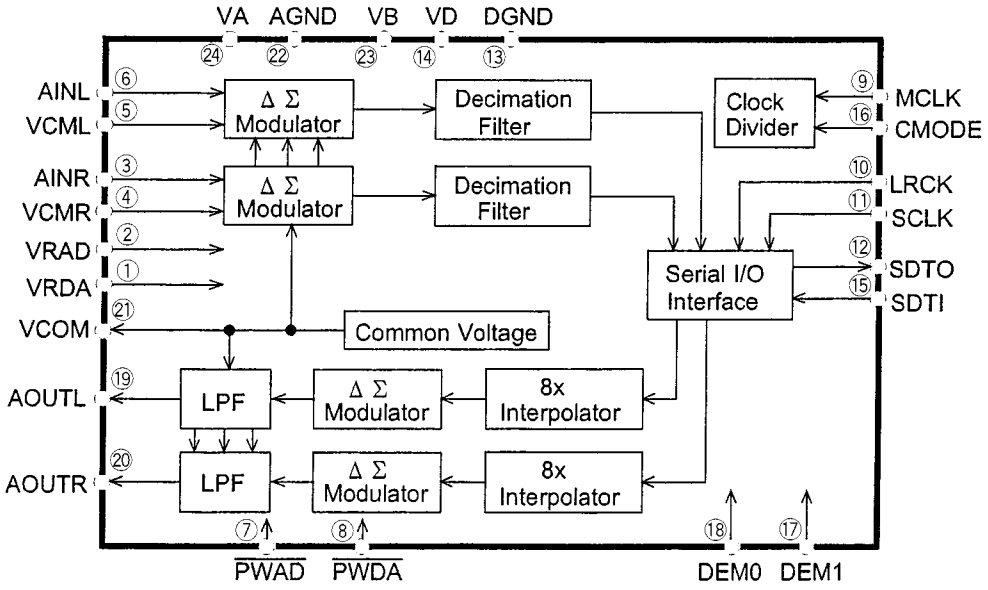
| No. | FUCTION | PIN NAME | I/O | NOTE | ACTIVE |
|---|---|---|---|---|---|
| 1 | PF3 | D.MUTE | O | DIN MUTE H: MUTE | H |
| 2 | PF4 | (NC) | O | | |
| 3 | PF5 | (NC) | O | | |
| 4 | PF6 | (NC) | O | | |
| 5 | PF7 | (NC) | O | | |
| 6 | PD0 | TEST | I | MECHA TEST MODE Input | L |
| 7 | PD1 | TESTU | I | UNIT TEST MODE Input | L |
| 8 | PD2 | CHARA | I | CHARACTER Exist or Not (types) input L : Chara. exist | |
| 9 | PD3 | (NC) | O | | |
| 10 | PD4 | COPOW | O | Codec Power control | H |
| 11 | PD5 | (NC) | O | | |
| 12 | PD6 | (NC) | O | | |
| 13 | PD7 | (NC) | O | | |
| 14 | PC0 | (NC) | O | big current port (12mA) | |
| 15 | PC1 | LED1 | O | MONO LP big current port (12mA) | H |
| 16 | PC2 | LED2 | O | REC big current port (12mA) | H |
| 17 | PC3 | LED3 | O | DIGITAL big current port (12mA) | H |
| 18 | PC4 | LED4 | O | PLAY big current port (12mA) | H |
| 19 | PC5 | DIM(MID) | O | H : light L : dark | |
| 20 | PC6 | DIM(HIGH) | O | H : H : L : | |
| 21 | PC7 | (NC) | O | big current port (12mA) | |
| 22 | PH0 | M.RST | O | MD MECHANISM control Rest Input | L |
| 23 | PH1 | M.MUTE | I | MD MECHANISM control MUTE request Input | L |
| 24 | PH2 | DSTB | I | MD MECHANISM control communication request Input | |
| 25 | PH3 | P.DOWN | O | MD MECHANISM control power down detection output | L |
| 26 | PH4 | (NC) | O | | |
| 27 | PH5 | XPBMUTE | O | MDPBMUTE output | L |
| 28 | PH6 | (NC) | O | | |
| 29 | PH7 | OUTSEL | O | PBSELECT output L : MD H: other | |
| 30 | RST | RESET | I | RESET | |
| 31 | EXTAL | EXTAL | I | input terminal for ceramic oscillator device (10MHz) | - |
| 32 | XTAL | XTAL | O | output terminal for ceramic oscillator device | - |
| 33 | Vss | VSS | - | | - |
| 34 | PE6 | (NC) | O | | - |
| 35 | PE7 | (NC) | O | | - |
| 36 | Avss | AVSS | O | | - |
| 37 | Avref | AVREF | O | | - |
| 38 | PA0/AN0 | KEY0 | I | key detection input 0 | - |
| 39 | PA1/AN1 | KEY1 | I | key detection input 1 | - |
| 40 | PA2/AN2 | (NC) | O | | - |
| 41 | PA3/AN3 | (NC) | O | | - |
| 42 | PA4/AN4 | S.DATA | O | system bus data output | - |
| 43 | PA5/AN5 | S.DATAIN | I | system bus data input | - |
| 44 | PA6/AN5 | (NC) | O | | - |
| 45 | PA7/AN7 | PROTECT | I | abnornal voltage detection input normal : 2.5V | - |
| 46 | PB0/LAT0 | (NC) | O | | - |
| 47 | PB1/CS0 | (NC) | O | | |
| 48 | PB3/SCK0 | DSCK | O | MD MECHANISM control communication clock output | |
| 49 | PB3/SI0 | MD DATA | I | MD MECHANISM control communication data input | |
| 50 | PB4/SC0 | SYS DATA | O | MD MECHANISM control communication data output | |

| No. | FUCTION | PIN NAME | I/O | NOTE | ACTIVE |
|---|---|---|---|---|---|
| 51 | PB5/SCK1PF4 | D.CLK | I/O | MD display communication clock output | - |
| 52 | PB6/SI1 | (NC) | I/O | | |
| 53 | PB7/SO1 | D.DATA | I | MD display communication data output | |
| 54 | PE0/EC0 | (to GND) | I | | |
| 55 | PE1/EC1 | (to GND) | I | | |
| 56 | PE2/CINT | (to GND) | I | | |
| 57 | PE3/NM1 | (to GND) | I | | |
| 58 | PE4/PWM0 | (NC) | O | Take care to use also device test terminal | |
| 59 | PES/TO/PWM1 | (NC) | O | Take care to use also device test terminal | |
| 60 | PI0/INT0 | S.CLK | I | system bus clock input | |
| 61 | PI1/INT1 | D.REQ | I | MD display communication request input | |
| 62 | PI2/INT2 | (NC) | - | | |
| 63 | PI3/INT3 | (NC) | O | | |
| 64 | PI4 | (NC) | - | | |
| 65 | PI5 | (NC) | O | | |
| 66 | PI6 | (NC) | O | | |
| 67 | PI7 | (NC) | O | | |
| 68 | PG0 | (NC) | O | | |
| 69 | PG1 | (NC) | O | | |
| 70 | PG2 | (NC) | O | | |
| 71 | PG3 | (NC) | O | | |
| 72 | VDD | VDD | - | | |
| 73 | NC | (NC) | O | | |
| 74 | PG4 | DSTB | O | | |
| 75 | PG6 | (NC) | O | | |
| 76 | PG6 | (NC) | O | | |
| 77 | PG7 | (NC) | O | | |
| 78 | PF0 | (NC) | O | | |
| 79 | PF1 | (NC) | O | | |
| 80 | PF2 | (NC) | O | | |

• I/O port is able to select function as input or output by 1bit unit.

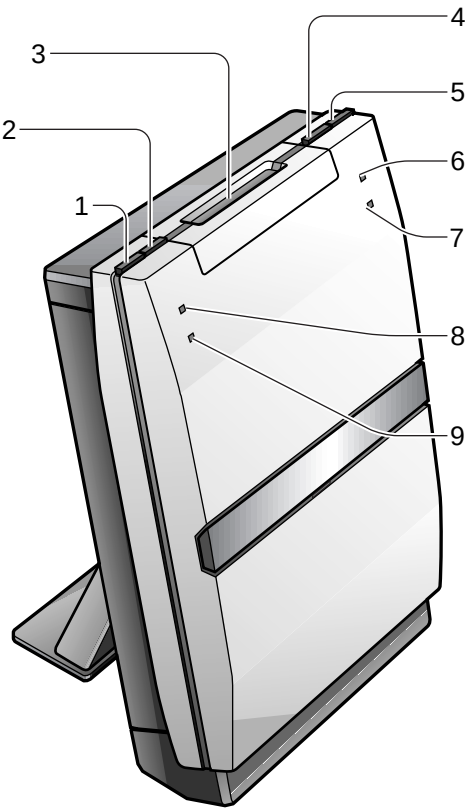
## ■ AK4519VF [MD CORE MAIN UNIT : IC110]

• **Audio Codec IC**




| No. | PIN NAME | I/O | FUNCTION |
|---|---|---|---|
| 1 | VRDA | I | Voltage Reference Input Pin for DAC, VA |
| 2 | VRAD | I | Voltage Reference Input Pin for ADC, VA |
| 3 | AINR | I | Rch Analog Input Pin |
| 4 | VCMR | O | Rch Common Voltage Output Pin, 0.45 x VA<br>Connect about 4.7 uF chemical capacitor and 0.1uF ceramic capacitor between AGND and this terminal. |
| 5 | VCML | O | Lch Common Voltage Output Pin, 0.45 X VA<br>Connect about 4.7 uF chemical capacitor and 0.1uF ceramic capacitor between AGND and this terminal. |
| 6 | AINL | I | Lch Analog Input Pin |
| 7 | $\overline{\text{PWAD}}$ | I | ADC Power-Down Mode Pin "L": Power down |
| 8 | $\overline{\text{PWDA}}$ | I | DAC Power-Down Mode Pin "L": Power down |
| 9 | MCLK | I | Master Clock Input Pin |
| 10 | LRCK | I | Input/Output Channel Clock Pin |
| 11 | SCLK | I | Audio Serial Data Clock Pin |
| 12 | SDTO | O | Audio Serial Data Output Pin |
| 13 | DGND | - | Digital Ground Pin |
| 14 | VD | - | Digital Power Supply Pin |
| 15 | SDTI | I | Audio Serial Data Input Pin |
| 16 | CMODE | I | Master Clock Select Pin<br>"H": 384fs or 512fs, "L": 256fs |
| 17 | DEM1 | I | De-emphasis Frequency Select Pin |
| 18 | DEM0 | I | De-emphasis Frequency Select Pin |
| 19 | AOUTL | O | Lch Analog Output Pin |
| 20 | AOUTR | O | Rch Analog Output Pin |
| 21 | VCOM | O | Common Voltage Output Pin, 0.45xVA<br>Connect about 4.7 uF chemical capacitor and 0.1uF ceramic capacitor between AGND and this terminal. |
| 22 | AGND | - | Analog Ground Pin |
| 23 | VB | - | Substrate Pin |
| 24 | VA | - | Analog Power Supply Pin |

# 8. PANEL FACILITIES AND SPECIFICATIONS




### Top Panel

1. ▶/❚❚ – Press to play an MD, or pause one that's already playing (press again to restart playback). In record mode, also use to start or pause recording.
2. ■ – Press to stop playback or recording of the current MD.
3. MD loading slot
4. ● – Press to record.
5. ⏏ – Press to eject the MD.

### Front Panel

6. MD REC indicator – Lights up during record or record-pause mode.
7. Mono indicator – Lights up when recording in mono.
8. PLay indicator – Lights up while paused or during playback.
9. Digital indicator – Lights up when MD recorder is in digital signal input mode.

## ■ SPECIFICATIONS

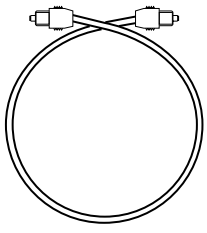
Recording method Magnetic field modulation overwritten type
Playback method ..... Non-contact optical type
Sampling frequency 44.1KHz,32KHz,48KHz
Frequency response ..... 20Hz – 20KHz
Wow and flutter ..... Limit of measurement (±0.001% W.PEAK) or less (EIAJ)
Power requirements ..... DC
Dimensions..... 170(W) × 268(H) × 66 (D) mm (without stands)
Weight ..... 1.5kg

Accessories
Optical digital cable ..... 1
Stand A ..... 1
Stand B ..... 1
Operating instructions ..... 1

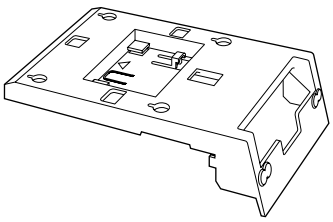
Note: Specifications and design subject to possible modification without notice,due to improvement.

Cleaning external surfaces
To clean this unit,wipe with a soft,dry cloth. For stubborn dirt,wet a soft cloth with mild detergent solution made by diluting one part detergent to 5 or 6 parts water,wring well,then wipe off the dirt. Use a dry cloth to wipe the surface dry. Do not use volatile liquids such as benzene and thinner which may damage the surfaces.

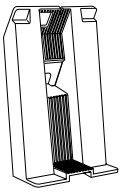
**Accessories**



Optical digital cable
(RKX1031)



Stand A
(AXG7096)



Stand B
(AXG7097)